Saskatchewan
Highways and
Transportation

Annual Report
1982-83

Saskatchewan
Highways
And Transportation

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Letter of Transmittal

April 1, 1983

The Honourable Frederick W. Johnson
Lieutenant Governor
Province of Saskatchewan

Sir:

It is a pleasure to submit to you the 1982-83 annual fiscal report for Saskatchewan Highways and Transportation.

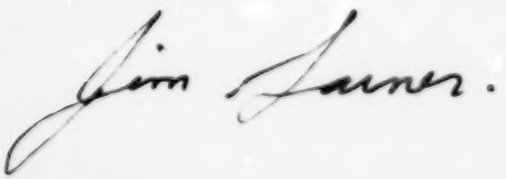
The past year has been an exciting challenge for me as well as for my department. The government's decision to amalgamate certain areas of the Department of Northern Saskatchewan within our department significantly increased our responsibilities in the north. As well, overall governmental reorganization, effective April 1, 1983, has added to our department's transportation policy-making role. I believe this restructuring to be both necessary and practical. Now all areas of transportation program and policy development are carried out under one jurisdiction. Reorganization will make government much easier for the public to understand.

Another goal successfully accomplished this year was the shift in work from the public to the private sector. In keeping with this government's philosophy of stimulating economic development through private enterprise, much of the department's road building activity has been transferred to private industry. I feel this development to be positive proof of our commitment to streamlining government without detriment to the public.

This year saw Highways and Transportation deliver its program efficiently and, I believe, effectively. Although many new, additional responsibilities were taken on by staff, progress has been made in all areas.

I take this opportunity to thank my departmental staff for their dedication and commitment. As well, I commend them for their ability to adapt to a new and constantly changing environment. These attributes will help guarantee Saskatchewan's people the excellent transportation system they deserve.

Respectfully submitted,



James W. Garner
Minister, Saskatchewan
Highways and Transportation

April 1, 1983

The Honourable James W. Garner
Minister
Saskatchewan Highways and Transportation

Sir:

It is my pleasure to present to you the Annual Report of Saskatchewan Highways and Transportation for the fiscal year ending March 31, 1983. This report provides a comprehensive review of all aspects of department activities.

The demands on the province's transportation system continue to increase.

Our job is particularly challenging in a province like Saskatchewan where funds are limited and the population base is distributed over such a vast area.

Extensive reviews of all government operations and services were undertaken over the past year to improve overall government effectiveness and productivity and to improve the quality of government programs and services. These initiatives resulted in several organizational studies with the objective of consolidating many transportation-related functions that were formerly assigned to other government departments and agencies within the Department of Highways and Transportation. This revised organization will enable the department to manage all transportation systems more effectively and efficiently.

These organizational studies were completed during the year and the following transportation related agencies will be realigned with the department effective April 1, 1983.

— The Transportation Agency of Saskatchewan
— The Transportation Policy Unit of the Department of Agriculture
— The Highway Traffic Board.

The Transportation Agency and the Transportation Policy Unit will be merged with the existing Planning Branch to form a new Planning Division within the department. Although the Highway Traffic Board is to be realigned with the department, its mandate and authority will remain unchanged with the Chairman of the Board still reporting directly to you as Minister-in-charge of the Board.

The Roads and Transportation Branch and the Equipment Repair Branch of the Department of Northern Saskatchewan were realigned to the Department January 1, 1983, however, the required integration to accommodate this change will not take place until April 1, 1983.

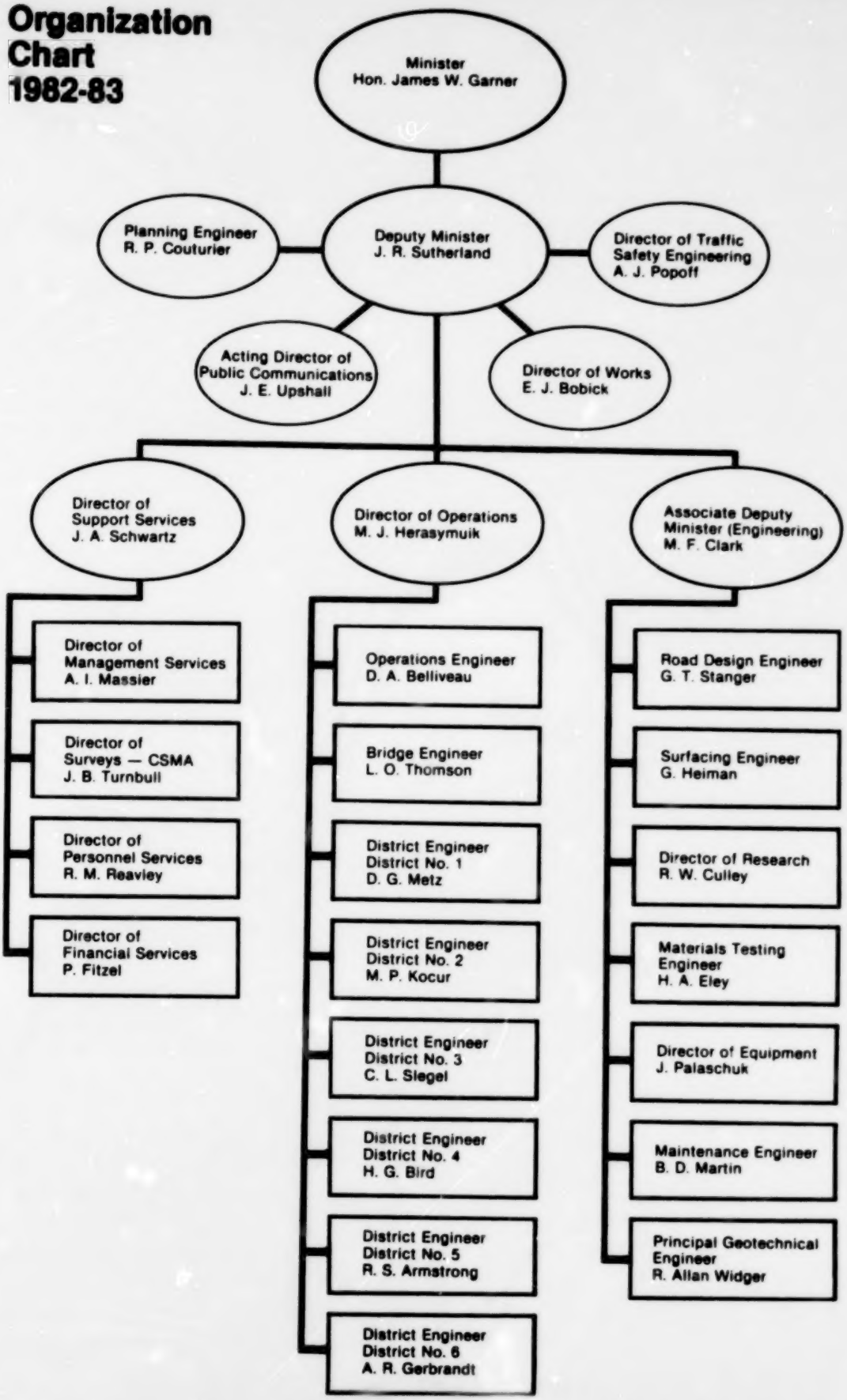
An organization review of the department's Works Branch also was undertaken as a result of the government's policy of more private sector involvement in the road construction industry. 1983 will see a significant reduction in the size of the department's grading and oiling crews. Reductions also will be made to the department's seal coating operations and more of this work will be tendered to the private sector.

I want to compliment all department staff for the effective manner in which they provided program services to the public. The years ahead will be even more challenging and there will be special demands on management skills in order to achieve a quality transportation system.

Respectfully submitted,

J.R. Sutherland
Deputy Minister
Saskatchewan Highways
and Transportation

Organization Chart 1982-83



Mission

To plan, implement and manage an integrated multi-modal transportation system which provides for the safe, efficient movement of people and goods at a level of service acceptable to the public for the economic and social development of the province, within the mandate and resources provided by the Government of Saskatchewan.

Main Objectives

— To formulate policies and programs for the purpose of developing improved transportation systems for the province.

— To provide and maintain the provincial highway system at an acceptable level of service and safety to all users.

— To provide transportation facilities necessary for social betterment and resource development.

— To assist urban centres in the development of arterial road networks.

— To provide assistance to improve and operate community airports throughout the province.

Major Objectives for 1983-84

— To implement the organization necessary to consolidate the transportation functions of the Transportation Agency and the Transportation Policy Unit of the Department of Agriculture with the department.

— Continuation of four-laning the Trans Canada Highway east of Qu'Appelle and west of Swift Current.

— Commence construction of approaches for the new Borden bridge on Highway 16.

— Continuation of upgrading of the Yellowhead Highway between North Battleford and Lloydminster.

— To commence upgrading sections of the old lanes of Highway 11 between Lumsden and Chamberlain.

— Provision of assistance to urban centres to provide major arterials and expressways.

Planning Branch

R.P. Couturier
Planning Engineer

Planning Branch is responsible for identifying and assessing present and long-range transportation demands, and for developing, recommending and monitoring capital policies and programs of the department. The entire transportation system and its inter-related components are considered in evaluating implications on various modes.

During the 1982-83 fiscal year liaison was maintained with federal and provincial agencies on subjects related to transportation. This involved standing committees and ad-hoc meetings.

Transportation Planning and Programming

The transportation planning and programming section of the branch is responsible for developing and recommending the department's annual and long-range capital programs, and for conducting policy, planning and research studies related to the capital programs.

Major accomplishments during 1982-83 were as follows:

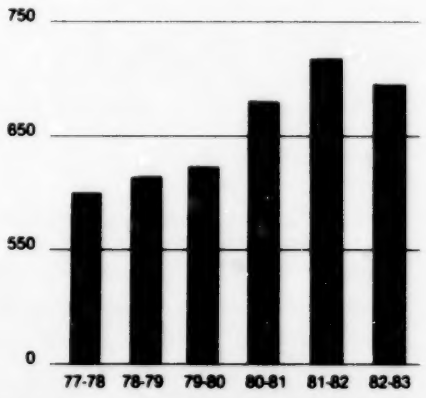
- A review of highway functional standards was conducted with a view to more cost-effective standards in terms of width and surface type for low volume roads.
- The A-Plans computer based system of developing the five-year capital construction program was revised and improved.
- The 1982 edition of the annual and five-year capital program and budget was produced.
- Several area and route programming studies were conducted.

Traffic Research

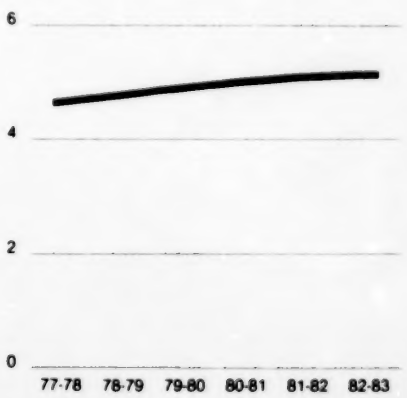
The traffic research section of Planning is responsible for obtaining and providing information for management within the department on matters related to highway traffic. Some of the activities undertaken during 1982-83 were as follows:

- Obtained traffic volume counts on the provincial highway system. Travel on provincial highways decreased by 3.5% from 1981 to 1982 due to decreased economic activity.
- Undertook a truck survey at selected locations to obtain information on weights, configurations, and commodities hauled by trucks.
- Studied the frequency of occurrence of vehicles using paved highway shoulders.
- Reviewed the impact of the heavy oil industry on the highway system.
- Studied the speed of recreation vehicles on provincial highways. The general findings of the study are that recreation vehicles have an average speed of 94 km/h which is 11.0 km/h slower than passenger cars.
- Studied the relationship between vehicle travel and fuel price.
- Developed a five-year program for the construction of loadometer sites. Loadometer sites are used for enforcing vehicle weight regulations.

Vehicle Registration in Saskatchewan
Thousands



Travel on Provincial Highways
Billion Vehicle Kilometres



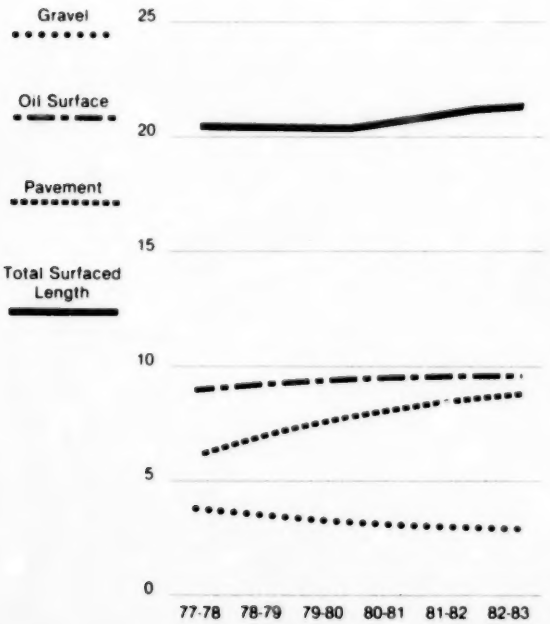
- Studied the extent and impact of overweight trucks on provincial highways and examined the feasibility of determining the relationship between enforcement and compliance for vehicle weight regulations.
- Updated traffic information for use in the engineering design of highways to be reconstructed in future years.
- Conducted miscellaneous traffic studies dealing with highway capacity, accident analyses, intersection and traffic analyses, and traffic movement through urban areas.

Urban Transportation

The urban transportation section of the branch is responsible for recommending policy related to the cost-shared Urban Assistance Program. Additional areas of involvement include the preparation of the annual urban assistance budget and the provision of technical guidance to cities involved in cost-shared studies.

In 1982-83 the demand for funds in the Urban Assistance Program continued to be very high. Major projects on which funds were used included the Circle Drive Expressway and 42nd Street Bridge in Saskatoon and the Lewvan Expressway in Regina. Regina and Saskatoon together accounted for more than 75% of the total funds in the Urban Assistance Program.

Provincial Highway Surfaces
Thousands of Kilometres



Traffic Safety Engineering

A.J. Popoff
Director, Traffic Safety Engineering

The objective of the branch is to reduce traffic accidents in Saskatchewan by managing the following activities:

- Develop and priorize an annual traffic safety improvement program for provincial highways.
- Administration of access control to provincial highways.
- Study and recommend appropriate levels of speeds on provincial highways.
- Manage a central traffic accident information system for the province.
- Carry out traffic accident and traffic engineering studies.
- Design, order, and administer all traffic signs and controls on provincial highways.

Highway Safety

The department continues to give priority to the safety improvement of provincial highways. Projects include guardrail installations, channelizations, approach flattening, breakaway sign posts, flashing lights, clearing sight triangles and various other spot improvements. The concept is to provide a forgiving highway environment that will eliminate or reduce the severity of traffic accidents. Major intersection safety studies were carried out at the intersection of Highway 2 and Thatcher Drive, and the junctions of Highway 1 and 56 and at Highway 2 and 11.

The Safety Improvement Program has contributed to a downward trend of highway accidents during the past nine years.

- The injury accident rate decreased by 47%.
- The fatal accident rate decreased by 46%.
- Injuries decreased by 32%.
- Fatalities decreased by 34%.

Traffic Control Devices

Traffic signs and lights play an important role in traffic safety by providing guidance and orientation. Traffic signs join traffic engineering and human factors to produce information matched to the characteristics of the location and the attributes of drivers. Drivers can be given sufficient information to avoid accidents at hazardous locations. Uniformity, placement, legibility and design of highway signs are important factors.

Province-wide testing is being carried out for a flexible glass fibre delineation post. This device shows promising results for warning motorists about roadway alignments, especially in construction detour situations.

A new route marker was designed and erected to designate Highway 13 as the Red Coat Trail.

In order to inform citizens about the importance and meaning of traffic signs, a pamphlet illustrating common signs and a display showing how signs are coded by colour and shape have been developed for viewing by the public and for use by driver educators.

Traffic Accident Information System

The Provincial Traffic Accident Information System (TAIS) has completed its fourth year of operation. TAIS now provides information about 175,000 accidents that occurred in Saskatchewan. The purpose of the system is to identify inadequacies of drivers, vehicles, and roadways so that appropriate actions can be taken to reduce losses due to traffic accidents.

Regular output reports from TAIS are sent to interested persons, agencies and municipalities on a monthly, quarterly and year-end basis. Newsletters and press releases are distributed to keep everyone informed about the current magnitude of accident statistics. Three thousand six hundred copies of the 1982 annual accident report containing detailed information, summaries, listings and analysis of all traffic accidents were distributed.

A special study using TAIS was carried out investigating the fatal accidents that occurred on provincial highways. This report helps to better understand where, why and when traffic fatalities occur and who the victims are.

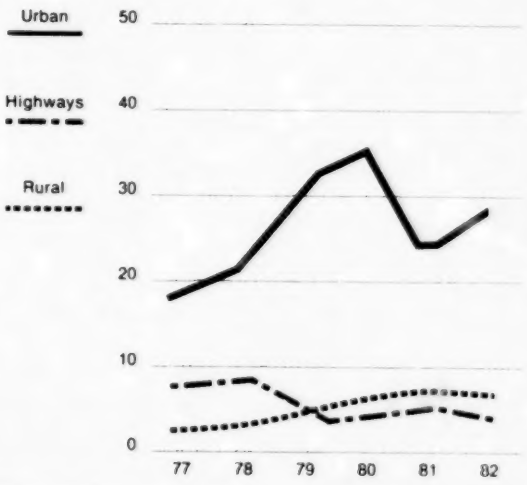
The branch participated in a series of police seminars throughout the province to highlight the importance of quality input and output of TAIS.

Safety Activities

The branch continues to be involved in a variety of related traffic safety activities as follows:

- A four-day traffic engineering course was arranged and presented to persons responsible for the safe and efficient movement of traffic in co-operation with the Saskatchewan Safety Council.
- Seventy per cent of all accidents occur in urban areas. The department provides financial assistance for safety improvements in communities. The branch provides information, service and training to urban officials.
- The branch co-operates and works closely with other agencies to develop, promote and implement traffic safety programs. The department participated in traffic safety fairs held in city shopping malls.
- The branch promotes and administers the Seat Belt Survivor's Club. Personal testimonials have now been given by 1,800 persons about the way seat belts saved their life or reduced injuries.

Total Number of Accidents by Road System (x 100)



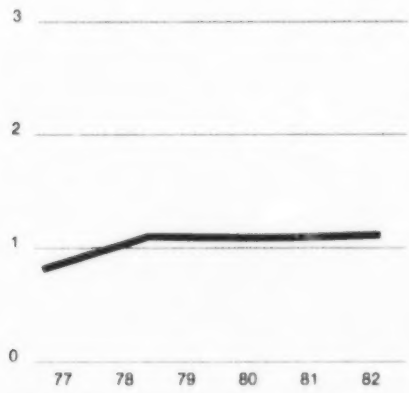
Injuries By Road System

Year	1978	1979	1980	1981	1982
Highways	2,143	2,318	2,407	2,266	2,155
Rural	2,727	1,616	1,684	1,772	1,598
Urban	3,987	4,685	4,301	4,350	4,510
Other		462	492	272	253
Total	**8,857**	**9,081**	**8,884**	**8,660**	**8,516**

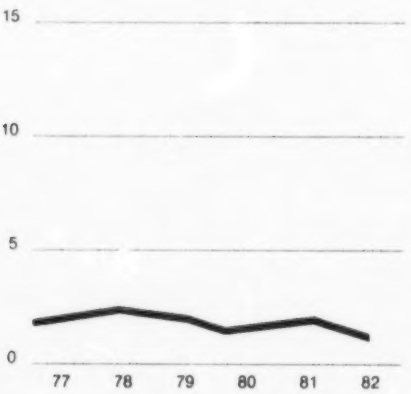
Fatalities By Road System

Year	1978	1979	1980	1981	1982
Highways	150	143	140	139	118
Rural	109	55	62	67	61
Urban	37	64	43	49	52
Other		28	20	7	9
Total	**296**	**290**	**265**	**262**	**240**

Highway Accident Rate
Accidents/Million Vehicle Kilometres



Highway Fatal Accident Rate
Fatal Accidents/Hundred Million Vehicle Kilometres



Works Branch

E.J. Bobick
Director, Works

Works Branch has four main areas of function, namely grading, surfacing, bridges and winter road construction. The branch provides these and other specialized construction services for our own and other government departments and agencies.

The branch employs between two and three hundred people during the peak operating season. These include equipment operators, truck drivers, plant operators, cooks, administrative personnel and supervisors. The nature of our work usually requires people to be away from home for long periods of time, working out of mobile self-contained camps. A large number of our employees on the works branch crews in the north are native.

Grading Section

The three grading crews moved 1 335 262 m^3 of earth materials. The southern crew continued work on Highway 312 west of Wakaw. One northern crew worked on Highway 106 north of Smeaton and the other crew continued to work on Highway 155 south of La Loche.

Surfacing Section

The six surfacing crews completed numerous road and custom work projects throughout Saskatchewan this year. Projects included oil treatment, A.M.O.S. treatment, lime stabilization, rubber-asphalt seal and thermo-patch.

Our crews used the traditional road-mix method and the drum-mix method in the production of the asphalt mixes for oil treatment and A.M.O.S. treatment mats.

The drum-mix plants mixed 129 964 t of asphalt mix and layed 96 711 t. We placed 100 km of rubber asphalt seal, lime stabilized 32.2 km, filled 10 714 depressions with sand-sulfur asphalt and completed 39 custom work projects in urban centres and parks.

Bridge Section

The seven bridge crews constructed 56 new bridges and repaired 127 existing bridges.

Works Branch crews re-decked the Manitoba Street Expressway underpass on Highway 1 east of Moose Jaw and the bridge over the Souris River near Roche Percee on Highway 39.

Winter Road

The 188 km winter road from Cluff Lake to Uranium City was constructed again in 1982-83. The road opened on February 14 for heavy traffic and closed March 23. For the second winter more freight was hauled out than was hauled in. The majority of the freight coming out was mining equipment as a result of Eldorado Nuclear Limited decommissioning its mine at Beaverlodge.

Training and Recruiting

Works Branch completed several training programs this year. Courses in management and safety training accounted for nearly 100 man-days of classroom instruction.

Works Branch provided opportunities for northern people to learn and work at road construction through on the job training. All recruiting was done through Native Norsask Outreach offices.

Public Communications

J.E. Upshall
A/Director, Public Communications

The mission of the Public Communications Branch is to plan, co-ordinate and monitor information programs and to foster understanding and acceptance of department policies and programs. Branch staff work in five primary areas to achieve this mission.

- Co-ordination of production and distribution of official and statutory publications.
- Planning and co-ordination and production of public information materials about department policies and activities.
- Planning and co-ordination of and response to public inquiries for information, and monitoring public opinion about activities.
- Planning and providing services to improve the effectiveness of branch and department public communication undertaken by department staff.
- Planning and provision of branch administrative services tc keep the branch in a state of readiness to respond to routine and emergency communication needs.

Official and Statutory Publications

The Official Highway Map of Saskatchewan is the branch's major publication. There were 500,000 copies of the 1983 map printed. This figure is down 150,000 from the previous year due to substantial cost increases over the last few years.

The branch is responsible for the production of the department's annual report. Two thousand copies of the annual report were printed this year.

Branch staff, as in past years, produced the annual Traffic Safety Accident Information report. Th report enjoys increasing popularity each year.

Public Opinion and Information

Over 556,000 pieces of information were distributed by branch staff and 3,450 telephone inquiries handled by branch staff during the 1982-83 fiscal year.

Staff produced 159 news releases for distribution and produced a total of 51,000 copies of five informational pamphlets over the year.

Public information campaigns were again undertaken for the department's Hotline Road Information Service and for Advance Notice of the spring road bans.

Other Highlights

Branch staff participated in a major public relations activity in conjunction with the three-day visit to the province by 47 delegates from Germany.

Other public relations functions branch staff were involved in included meetings with the Saskatchewan Roadbuilders, SARM, a special ceremony in recognition of Saskatchewan Seat Belt Survivors Club members 1,800 and 1,801, and the annual meeting of the Red Coat Trail Association when the official Red Coat Trail sign was unveiled by the Honourable James W. Garner, Minister of Highways and Transportation.

Branch staff produced one major audio-visual presentation throughout the year.

The branch has been very busy establishing new priorities for the promotion of safety on the provincial highway system. The branch also has been working towards streamlining production work of information material as a step in increasing the general efficiency of branch activities.

Operations Division (as of March 31, 1983)

Operations Division is comprised of six districts and two head office branches. Operations Division staff, as the division's mission states, are responsible for implementation and administration of operational programs and management of the designated provincial transportation facilities for the department within the specified levels of service and resources.

The Roads and Transportation Branch of the Department of Northern Saskatchewan was realigned with Operations Division during the past year resulting in an additional 1,650 km of road and 16 airstrips being added to the division's responsibilities. The functions of design, construction and maintenance of roads and airfields throughout northern Saskatchewan was reassigned to the North Battleford and Prince Albert districts.

There was a major focus placed on extending the four-laning of the Trans Canada Highway from Beverley to Webb, and construction of the Yellowhead west of North Battleford. Work also continued on the major routes in the north. Poor weather in the fall prevented completion of a number of major projects which necessitated carry over of the work into 1983.

Once again, the objectives for riding quality of oil treated and paved surfaces were met by maintenance staff. Late spring and early fall snowstorms interrupted maintenance activities, particularly in the south west corner of the province.

The department objectives with respect to the Urban Assistance Program were met. Excellent progress was made by the urban communities throughout the province in upgrading their arterial streets.

A new Capital Budget Control System was developed which will provide management with a more timely status report of the Capital Program, and in turn aid in the decision-making process.

The needs of the public for high-quality transportation facilities, combined with budget restrictions, will continue to provide the Operations Division staff a challenge in the delivery of the various programs.

Details of specific programs and accomplishments are provided in the following individual branch and district reports.

Myron Herasymuik
Director of Operations Division

James W. Garner
Minister, Highways
and Transportation

J.R. Sutherland
Deputy Minister

M.J. Herasymuik
Director of Operations

D.A. Belliveau
Operations Engineer

C.L. Siegel
District Engineer
District No. 3

L. O. Thomson
Bridge Engineer

H. G. Bird
District Engineer
District No. 4

D. G. Metz
District Engineer
District No. 1

R. S. Armstrong
District Engineer
District No. 5

M. P. Kocur
District Engineer
District No. 2

A. R. Gerbrandt
District Engineer
District No. 6

Operations Branch

Operations Branch provided executive, technical and financial services to the Operations Division. Major activities of the branch included:

- Management of centralized activities related to tendering, scheduling and contract administration.
- Development and control of department annual programs and budgets.
- Administration of purchasing construction and maintenance materials.
- Co-ordination of cost-shared programs.

Construction Tenders

Sixty-two construction tenders valued at $23.7 million dollars were awarded during 1982-83. In comparison with the previous year, eleven fewer tenders were issued with a $19.1 million dollar decrease in the value of contracts awarded.

Contracts are tendered throughout the year to provide a balanced workload for contractors. In the fall and winter, the heavy emphasis is placed on processing aggregates so that much of the hauling can be done in the winter to minimize damage to haul routes.

Unit bid prices for earthwork decreased slightly, while unit prices for surfacing items were in line with the bid prices received in the previous year.

Grading

The amount of earth excavation work completed during the year was 8 498 717 m^3.

There were 239 km of new construction completed with 46 km grading work underway at year end.

Surfacing

The quantity of bituminous mix used on contracts in 1982-83 decreased to 191 618 t from 305 860 t. The quantity of sub-base and base material used in 1982-83 was 1 549 161 t, compared to 1 702 859 t in 1981-82.

During the year 230 km of oiling, 61 km of A.M.O.S., 109 km of rubber asphalt surface and 229 km of pavement were completed.

Urban Transportation Assistance Program

Under the Urban Street Assistance Program, $17,862,771 was provided to assist 64 communities to improve streets.

A total of $99,653 in financial aid was provided to 38 communities under the Urban Safety Program.

Airport Assistance Program

Thirty local governments participated in the Southern Airport Assistance Program administered by the branch. The department provided $185,453 in assistance under the program.

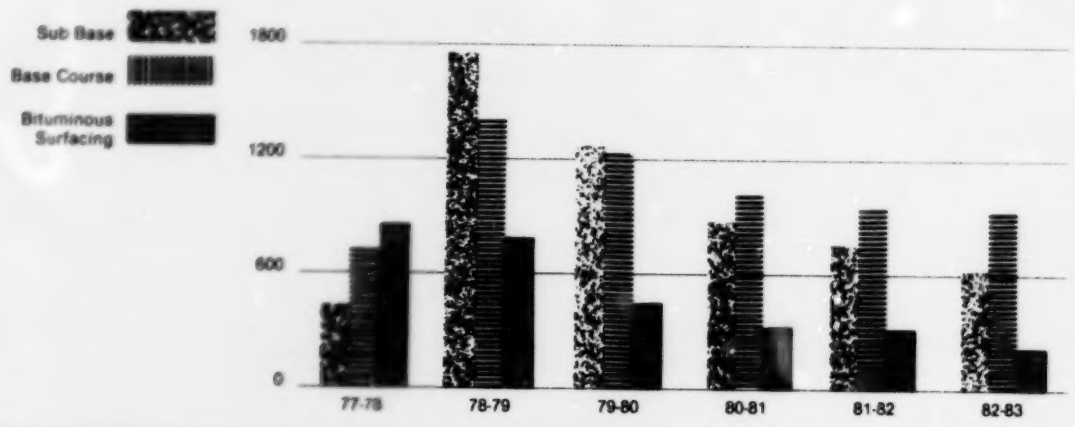
Rural Transportation Assistance Program

Operations Branch administers a program to provide transportation services to communities in rural areas not presently served by other public transportation.

Surfacing Quantities

Sub Base, Base Course, Bituminous Surfacing

Thousands of Tonnes



The provincial government, through the Department of Highways and Transportation, underwrites the net operating cost of the routes which totalled $131,100 in 1982-83.

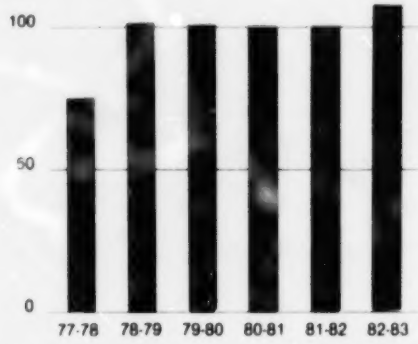
In addition to the above routes, following the realignment of Department of Northern Saskatchewan, Operations Branch also will administer the bus lines into Sandy Bay and Deschambault in Northern Saskatchewan.

Other Highlights

- In the Rural Transportation Assistance Program $123,199 was spent on six pilot projects.
- Automatic railway crossing signals were installed at five locations during the year.
- Community access lighting was installed at 55 locations during the year at a cost of $190,508.
- 77,267 calls were handled on the Department's Hotline Winter Road Information Service.
- 328 purchase orders for construction and maintenance materials valued at $34,500,000 were processed.
- 609 payments to contractors were processed, totalling $44,107,000.

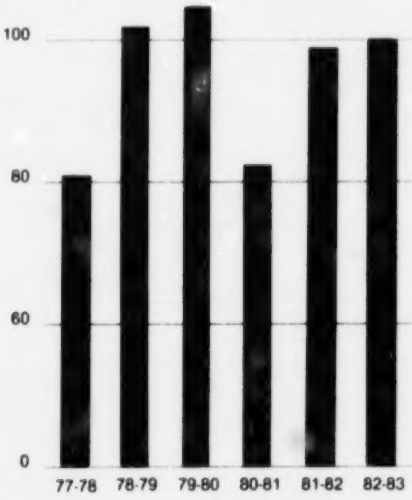
Capital Expenditures
Construction

Expenditure - Millions of Dollars



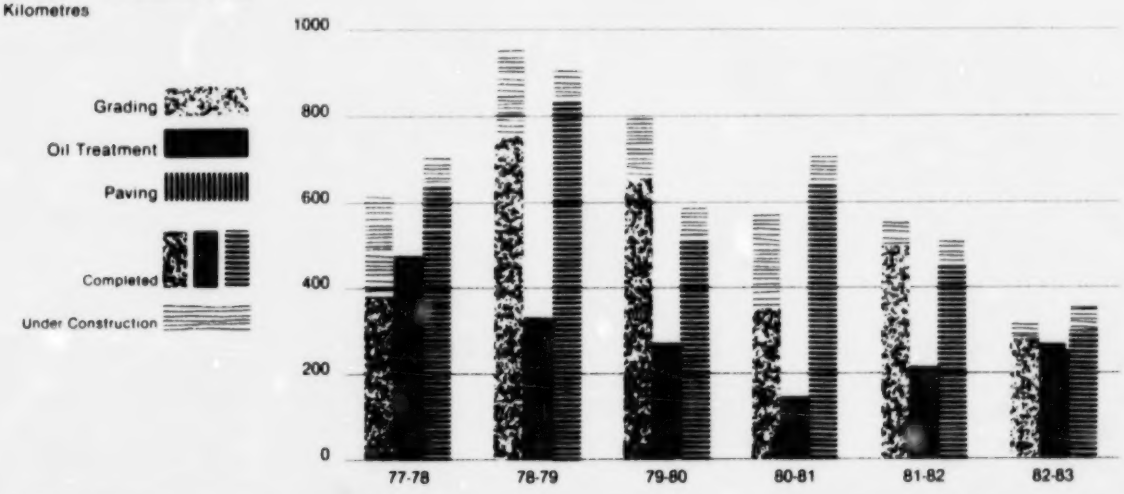
Unit Bid Prices for Earth Excavation
Earth Excavation - Compaction

Cents Per Cubic Metre



Road Improvements
(On main highway system, auxiliary roads, park access roads and urban highway connections.)

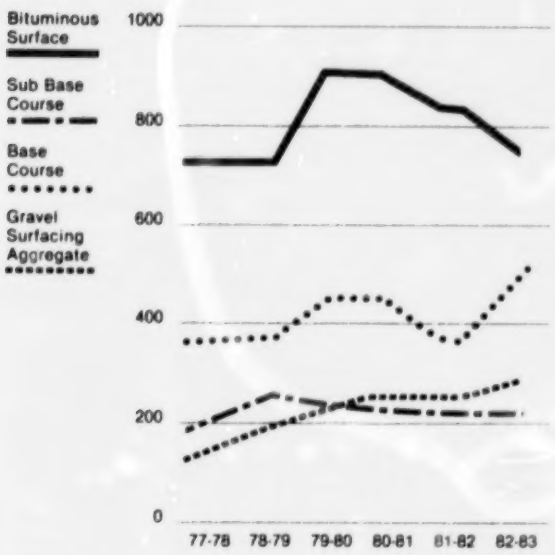
Grading, Oil Treatment, Paving
Kilometres



Unit Bid Prices

(Weighted on basis of tender quantities less haul in place)

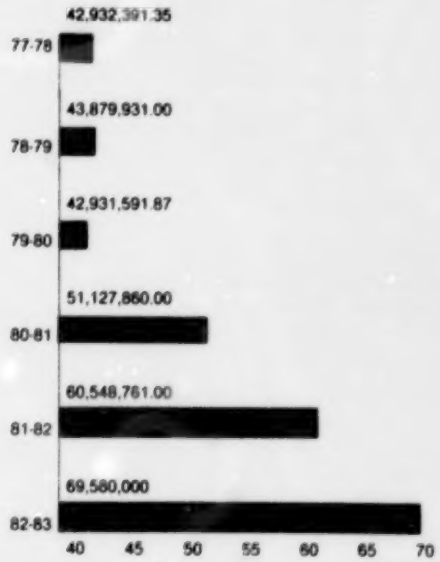
Cents Per Tonne



Total Maintenance Expenditure

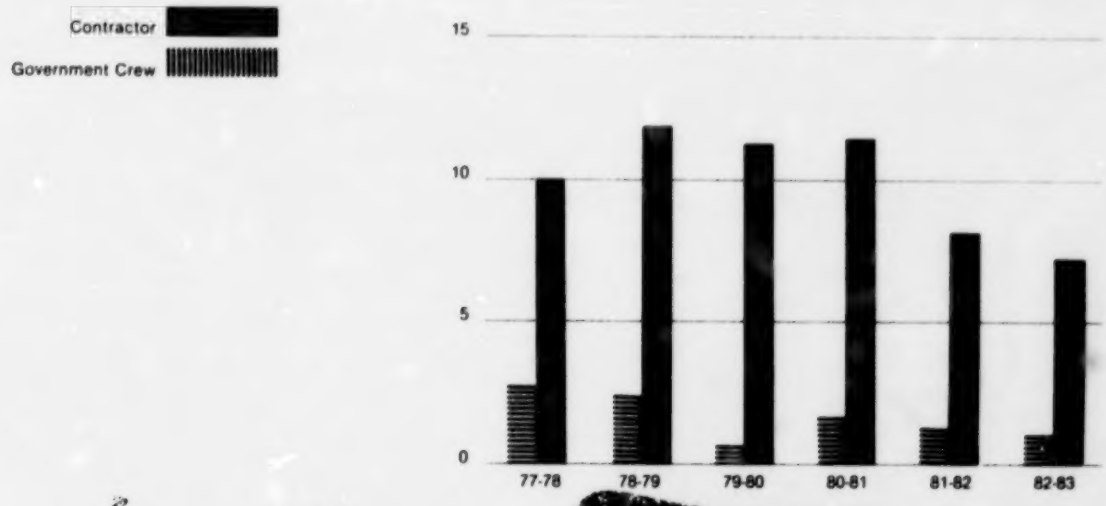
General Services and Provincial Highways

Expenditure - Millions of Dollars



Earthwork

Millions of Cubic Metres



Bridge Branch

The mission of Bridge Branch is to design, construct, maintain and manage the bridge component of the department's road transportation system, and to provide a source of structural and bridge-related expertise for other department and government units to established levels of service within available resources.

Construction

Major betterments were carried out to the deck of the 467-metre Saskatchewan River bridge on Highway 55 near Nipawin. Work included expansion joint replacements, improvements to construction joints, repair of the concrete deck surface, placing waterproofing membrane, and placement of an asphalt riding surface.

Rehabilitation work was carried out on the five steel trusses of the north bridge over the North Saskatchewan River between Battleford and North Battleford to strengthen the floor system and maintain the steelwork.

Department crews undertook 15 capital works projects and 103 repair jobs.

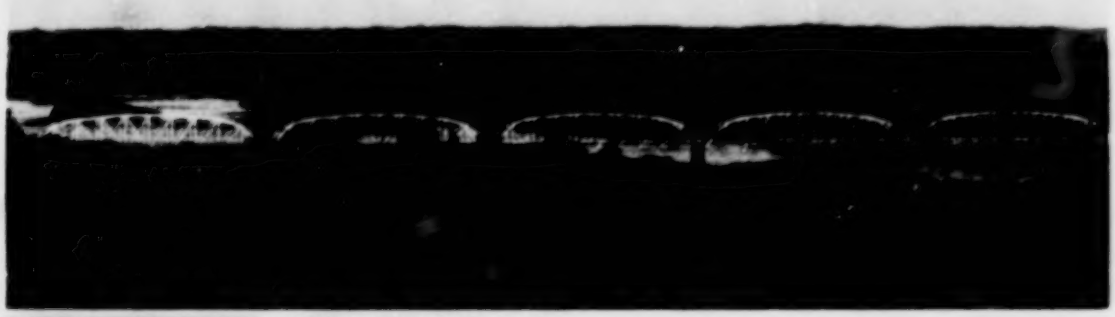
Other Activities

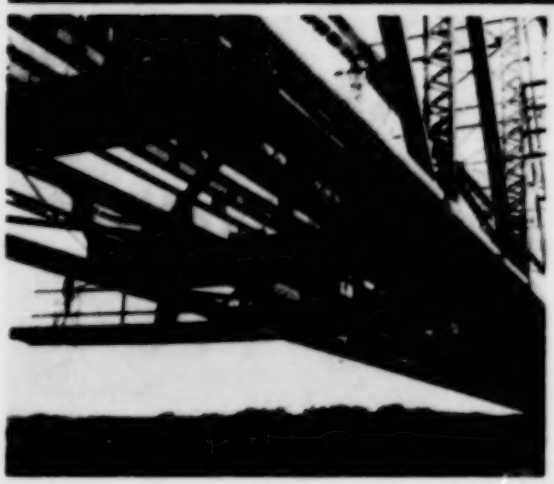
Location studies were carried out for a second crossing of the North Saskatchewan River on Highway 16 between Borden and Langham. A new steel box-beam barrier was installed on the existing 260-metre bridge for safety improvement.

Deck resurfacing, using dense concrete overlays, were completed on the Souris River bridge on Highway 39 and the interchange structure of Highway 1 over Manitoba Street Expressway in Moose Jaw. A similar joint Saskatchewan-Alberta overlay project was completed for the Battle River bridge on Highway 17.

Design work was completed for the proposed bridge over the North Saskatchewan River on Highway 17 north of Lloydminster.

Bridge Branch again provided assistance to Department of Northern Saskatchewan and to Department of Tourism and Renewable Resources for design of the bridges on roads under their jurisdiction.





The Battlefords truss bridges, built in 1908, were upgraded during the year to better meet present-day load demands. Scaffolding (left) was used to facilitate blastcleaning prior to painting of the new floor system.

Bridge Work Accomplished

Highway & Control Section Number	Location	Description of Work
1-12	On 35-16-26-2 over Manitoba Street Expressway east of Moose Jaw	Major deck repairs to eastbound 93 metre, 5 span continuous concrete T-Beam bridge
4-13-70	On 32-43-16-3 over North Saskatchewan River near North Battleford	Deck betterment to 393 metre 5 span steel truss bridge
4-18	On 23-61-18-3 over Beaver River near Meadow Lake	Install precast concrete barriers on 82 metre 3 span reinforced concrete T-Beam bridge.
13-1	On 18-7-30-1 over Gainsborough Creek east of Redvers	Widen existing 30 metre 3 span pile bridge and new barrier.
13-1	On 18-7-31-1 over Lightning Creek east of Redvers	Construct 1 - 6 metre pile bridge
13-12	On 29-8-7-3 over Creek east of Kincaid	Widen existing 1 - 6 metre pile bridge and new barrier
16-23	On 19-39-8-3 over North Saskatchewan River southeast of Borden	Install new galvanized steel box beam guardrail on 260 metre 7 span reinforced concrete arch bridge.
17-1	On 12-45-1-4 over Battle River south of Lloydminster	Deck renovations to 62 metre 3 span prestressed concrete bridge
20-1	On 14-20-21-2 over P.F.R.A. canal south of Craven	Construct 29 metre 3 span pile bridge with precast concrete deck
21-15	On 21-49-23-3 over Big Gully Creek north of Maidstone	Raise and widen existing 1 - 12 metre pile bridge and new barrier
26-3	On 13-51-21-3 over Turtle River north of Turtleford	Install new galvanized steel rail system on 30 metre 3 span pile bridge
35-2	On 8-5-14-2 over Jewel Creek north of Tribune	Complete construction of 36 metre 3 span pile bridge with precast concrete deck
39-1	On 33-1-6-2 over Souris River southeast of Estevan	Major deck repairs to 53 metre 3 span steel girder bridge
52-1	On 34-25-6-2 over drainage ditch west of Yorkton	Construct 1 - 12 metre pile bridge with precast concrete deck
55-6	On 16-51-14-2 over Saskatchewan River northwest of Nipawin	Major deck repairs to 467 metre 10 span welded plate girder and precast girder bridge

Department crews assisted with the district's safety program by installing concrete barrier systems at four bridges. A total of 103 bridges of various sizes were repaired by department crews.

District Offices

(as of March 31, 1983)

Swift Current - District 1

Don Metz.....District Engineer
Gordon May.....Administration Officer
Wayne Darroch.....Construction Engineer
Les Bell.....Design Engineer
Brian Wilkie.....Maintenance Engineer

Regina - District 2

Mitch Kocur.....District Engineer
Bernie Hughes.....Administration Officer
David Stearns.....Construction Engineer
John Pichurski.....Design Engineer
Bert Pulles.....Materials Engineer
Dave Bing-Wo.....Maintenance Engineer

Yorkton - District 3

Carl Siegel.....District Engineer
Mel Fostey.....Administration Officer
Thomas Gutek.....Construction Engineer
Merv Gunderson.....Design Engineer
George Stamatinos.....Materials Engineer
John Dunlop.....Maintenance Engineer

Saskatoon - District 4

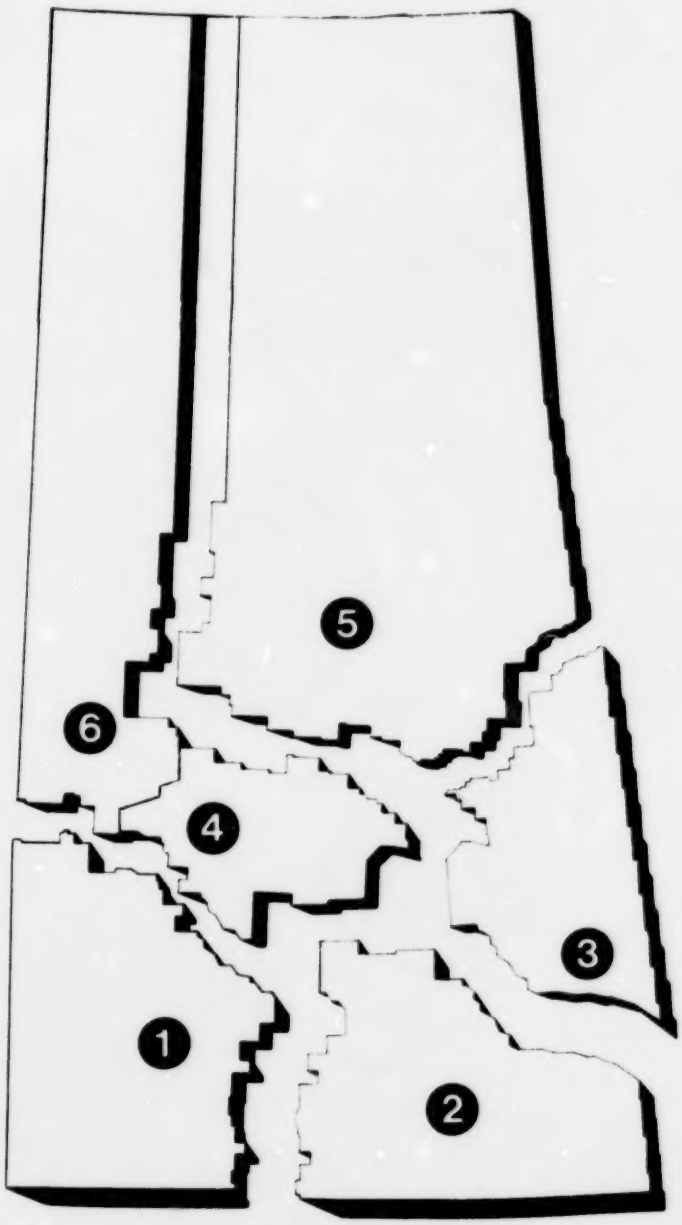
Harold Bird.....District Engineer
Joan Federow.....A/Administration Officer
Vern Campbell.....Construction Engineer
Bob Krueckl.....Design Engineer
Neil Richardson.....Materials Engineer
Marcel Coquet.....Maintenance Engineer

Prince Albert - District 5

R. Stu Armstrong.....District Engineer
G. Willis Cunningham..Administration Officer
Norm Woodcock.....Construction Engineer
Terry Kudel.....Design Engineer
Vacant.....Materials Engineer
Joe Zbeetnoff.....Maintenance Engineer

North Battleford - District 6

Ray Gerbrandt.....District Engineer
Vicki Serack.....Administration Officer
Ray Connoly.....Construction Engineer
Jim Labossiere.....Materials Engineer
R.C. Goodfellow.....Maint. Superintendent
Delbert Minter.....Design Engineer



Swift Current District

District staff are responsible for 4 005 km of highway.

A heavy snowfall in late May caused problems on the grading on No. 1 Highway west of Swift Current and also caused considerable distress to develop on a number of light pavements.

Design and Testing

The design section is responsible for designing highway subgrades, safety improvement projects, illumination projects and miscellaneous projects for the special construction program. This section also operates the District Materials Laboratory.

The Design section staff completed 62 km of subgrade design and 75 km of preliminary survey during the year. Soils laboratory staff processed a total of 5,702 samples for gravel pit control, subgrade and pavement design, and construction contract administration.

Construction

The construction engineering section is responsible for the supervision of construction projects, the materials location program and the supervision of cost-shared programs.

During the year, 58.2 km of subgrade were constructed and 71.4 km surfaced of which 51.1 km were oil treatment and 20.3 km rubber asphalt seal.

The majority of the construction program in 1982 was focused on extending the four-laning of the Trans Canada Highway from Beverley to Webb.

The materials location unit conducted materials searches resulting in the location of 633 000 m^3 of sand and gravel.

Maintenance

Spring and fall snow storms interrupted surface maintenance this year bringing the plows back onto the roads in late May and September. This presented some problems on specific roads, however, maintenance crews were able to maintain overall riding comfort objectives.

Maintenance forces used 259 000 t of processed aggregate, 71 300 t of bituminous mix and 18 350 000 L of liquid asphalt to maintain the district highway system which consists of the following:

- 48 km gravel surface
- 2 731 km oil treated surface
- 1 087 km paved (two-lane) surface
- 139 km four-lane paved surface
- 71 km tourist facility roadways

In addition, maintenance forces repaired 34 km of weak or failed highway subgrade.

To accomplish this work, the district has 23 section crews, and eight special crews in 20 communities throughout the district.

Regina District

The Regina district is responsible for 4 839 km of provincial and public highways, including 102 km of tourist facility access roads.

In addition to regular maintenance activities, major highway improvements included subgrade, oil treatment, surfacing, A.M.O.S., rehabilitation and seal coat construction work.

Design and Testing

During the year 50 km of field survey, 70 km of subgrade design and 102 km of pavement design were completed.

500 000 m^3 of sand and gravel were tested and located. Construction and maintenance activities used 584 500 m^3 of sand and gravel. Public organizations and private individuals obtained 220 436 m^3 of gravel under 119 separate permits.

Construction

Construction crews graded 43 km, surfaced 113 km and constucted A.M.O.S. on 8 km of highways and oil treated 1 km of community access roads.

Regina district construction personnel supervised 99 km of rubber asphalt seal coat constuction projects throughout the province at a cost of $1,801,339 including 51 km in the Regina district.

Maintenance

Maintenance crews produced 113 900 t and applied 79 340 t of asphalt patching mix, applied 769 km of seal coat, seeded 585 ha of grass and mowed 14 100 km of grass along shoulders and highway roadsides.

Highway maintenance is provided with 34 section crews and seven special crews located in 31 communities throughout the district.

New section maintenance headquarter buildings were completed at Oungre and at Willow Bunch.

The Regina district will become responsible for the management and operation of the Moose Jaw equipment repair shop on April 1, 1982. The district will then have shops at Weyburn and at Moose Jaw.

Shareable Programs

Regina, Moose Jaw, Weyburn and Estevan received a total of $6,531,632 under the Urban Assistance Program for street and traffic safety improvements.

The City of Regina continued major construction work on the Lewvan Expressway from 13th Avenue to 3rd Avenue and Saskatchewan Drive east of the Lewvan Expressway.

Twenty-three urban centres under 5,000 population received a total of $1,151,403 for street and traffic safety improvements. Seven communities received a total of $49,493 to develop, operate and maintain community airports.

A total of $32,000 was received by 59 out of 100 eligible communities to maintain oil treated surfaces on main business streets.

Other Activities

Highway safety and miscellaneous special construction improvements included improving subgrades with lime; improving roadway drainage; construction loadometre sites; improving road information signs, and flattening approach sideslopes. In addition, 31 intersections were delineated with one or two street lights. Guardrail was installed at five sites, including four highway bridges.

District staff successfully negotiated 185 property purchase and miscellaneous damage agreements. Expropriation was required in one property acquisition.

District Winter Road Information Service (hotline) received 37,055 telephone inquiries between November 1, 1982 and March 31, 1983. The hotline was operated at Regina, Weyburn and Moose Jaw.

Under the landscape program 550 new trees and shrubs were planted at various sites.

Yorkton District

The Yorkton district is situated in the heartland of the Parkland Region and is responsible for 3 029 km of provincial highway system.

The year's highlight was the district move to new office facilities on the second floor of the Parkland Data Building at 41 Broadway West, Yorkton.

Design

The design section carried out 20 km of preliminary survey and 31 km of highway design during the fiscal year 1982-83. An environmental impact assessment was undertaken on Highway 8 in the Qu'Appelle Valley.

Construction

Construction section staff supervised four grading and five surfacing projects during the year which realized the completion of 39 km of subgrade construction and 104 km of surfacing. Only one grading project and one surfacing project were carried over to the following year.

The last surfacing contract on Highway 49 between Lintlaw and Kelvington was completed this year which completes the surfacing on all of Highway 49 to a good quality pavement standard.

Another construction highlight in the district was the successful completion of the first hot-mix recycling project, on Highway 22 from IMC K2 Mine Site to Esterhazy, where 14 km of recycled mat was laid.

The total expenditure on capital projcts supervised by the district in 1982-83 amounted to $11,534,434.00.

Extensive improvements were made to the main internal roads and parking lots in Greenwater Lake Provincial Park. The work included surfacing with a hot-mix bituminous surface course over a lime-dried subgrade. The $325,000 expenditure has improved the road and parking lot standard in the park to one of the best in the province.

Maintenance

Maintenance section produced 67 540 t of bituminous mix and applied a seal coat on 400 km of highway surface. An average pavement performance rating of 5.6 was attained on oil treated surfaces.

The highway system maintained by district forces includes:

- 230 km gravel surface
- 1 185 km oil treated surface
- 1 614 km paved surface
- 60 km of roadway within campgrounds and provincial parks.

Materials Section

Materials section staff completed 250 km of grade

hole drilling, 20 km of stratigraphy drilling and 32 km of borrow pit testing for subgrade and surfacing design purposes.

Gravel location crews identified seven new sand and gravel deposits and re-tested 15 existing department-owned pits. The searches verified an additional 1 806 000 m^3 of granular material.

Staff issued 126 permits to public institutions and private individuals, who removed 161 400 m^3 of sand and gravel from department-owned pits this year. District construction and maintenance activities used an additional 446 004 m^3.

Staff completed 11 pavement designs totalling 226 km of highway.

Other Activities

Projects in the area of safety improvement included the flattening of approaches on Highway 49 between Preeceville and Okla; installation of cable guardrail on the south hill of Highway 49; upgrading bridge rails with approach guardrails at five locations and the installation of pedestrian cross-walk lights on Highway 9 at Hudson Bay and Highway 15 at Quinton.

Saskatoon District

The Saskatoon district is responsible for 2 488 km of the provincial highway system. Some of the activities carried out are listed below.

Design

The design section carried out 66 km of field surveys and 50 km of subgrade design. Several safety improvement projects were designed including guardrail, intersection lanes, and intersection lighting.

Functional designs for two interchanges in the vicinity of the Saskatoon airport were completed.

An environmental report (project proposal) was prepared for the proposed bridge across the North Saskatchewan River near Borden.

Nine communities were assisted financially under cost-shared programs for upgrading of transportation systems.

Construction

The construction section supervised 17 contracts involving 63 km of subgrade construction, 15 km of pavement overlay, 9 km of asphalt mat on subgrade and 24 km of oil treatment.

Four communities were assisted through the custom work program.

Maintenance

A variety of improvements were carried out by maintenance section staff.

Deep patching	5 689 m^2
Thermo patching	75 km
Re-oiling	54 km
Rubber asphalt seal coat	27 km
Seal coat on paved highways	144 km
Seal coat on A.M.O.S. highways	30 km
Seal coat on oiled highways	136 km
Pavement shimming	12 km
Stockpiling of bituminous mix	29 650 t
Seeding right-of-way	63 ha
Installation of security fence	3 151 m
Screening aggregate for ice control	1 610 t
Winter Maintenance...	
sand	2 850 t
salt	4 020 t
CaCl	46 t
CaCl	8 320 L.

Maintenance costs were $6,804,473 of which $1,217,683 was for winter maintenance and $1,933,531 was for special maintenance projects.

The Saskatoon Road Information Service (hotline) handled 26,693 phone calls throughout the winter.

Materials

This section completed the design of pavements for fifteen projects. Many specialized investigations were carried out including site investigations and quality control. The materials engineer conducted in-house training courses in air photo interpretation and a number of courses in soils selection.

The Materials section phased-out its working arrangement with the North Battleford district and assumed responsibility for similar work in the Swift Current district during the year.

Routine work included the following:

- 196 km of subgrade sampling for design purposes.
- 24 km of preliminary soils investigation.
- 60 km of borrow pit testing.

The district testing laboratory performed 13,120 individual tests on material samples.

The gravel section tested 11 new deposits and retested 18 existing deposits. This work verified 367 000 m^3 of gravel and 788 000 m^3 of sand. The cost of testing was $0.19/$m^3$.

Prince Albert District

The Prince Albert district is responsible for 4 739 km of public and provincial highways. This includes 754 km of highways which were formerly under the jurisdiction of the Department of Northern Saskatchewan. The district also is responsible for the maintenance and operation of the La Ronge airport and after the realignment with the Department of Northern Saskatchewan became responsible for the maintenance of 10 gravel airstrips.

Design and Testing

Design staff completed 52 km of preliminary surveys and 60 km of final design during the year. Six detailed location studies also were completed.

Gravel location crews located five new gravel sources containing 99 000 m^3 and one new sand source containing 55 000 m^3. This will result in considerable savings in future haul costs. District lab staff provided test results on aggregates and soils for use by district design and construction staff and for the provision of information to contractors bidding on department work.

Construction

During the year, 27 km of subgrade were constructed along with 40 km of pavement and 113 km of oil treatment.

Projects completed included grading and surfacing on Highway 2 north of La Ronge; surfacing on Highway 55 from White Fox to Smeaton; grading and oiling on Highway 55 north of Big River, and grading and oiling on Highway 106 in the vicinity of Deschambault Lake.

Other projects administered by district construction staff included the construction of a crosswind runway at the La Ronge airport; oiling on various access roads and main streets, and several spot improvements on the highway system. Gravel was crushed and applied to the road surface along the entire length of Highway 105.

Maintenance

The highway system maintained includes 2 223 km of gravel, 1 038 km of oil treatment and 1 478 km of pavement.

A variety of improvements were carried out as follows:

Deep patching	46 700 m^2
Seal coats	480 km
Clay capping	17 km
Dust treatment	170 km
Re-oiling	35 km

Summer maintenance was normal. During the winter months snowfall was above average. Eleven incidents of freezing rain required the use of 7 285 t of salt to remove the ice.

Other projects undertaken by district maintenance staff included seeding new right-of-way; landscaping to eliminate erosion problems in highway ditches; slope flattening, and the new installation of guardrail at 10 locations.

District shop staff provided excellent service to repair and overhaul a fleet of approximately 600 units.

Other Activities

In addition to the normal administration duties, district administrative staff processed 128 over-dimensional permits, 66 material requisitions, 122 gravel and sale of material invoices, 1,000 construction and maintenance material invoices and 300 custom work billings. Excellent results were achieved in the area of processing accounts for payment in a timely manner.

A total of 15 communities participated in assistance programs that included Urban Assistance, Airport Assistance and Urban Traffic Safety.

Delineation lights were installed at eight different intersections and runway lights were upgraded at the Stony Rapids airstrip.

District staff participated in studies involving the salvage of gravel associated with the new Nipawin Dam.

Winter roads were operated from Cumberland House to Sturgeon Landing and from Highway 105 to Wollaston Lake.

The Wollaston Lake barge operated from June 23 to October 14th making 104 crossings to the community of Wollaston Lake.

North Battleford District

The North Battleford district was responsible for 3 139 km of the provincial highway system along with two provincial airports during the 1982-83 fiscal year. The January 1st takeover of roads and airports formerly administered by the Department of Northern Saskatchewan added 930 km of road and seven local airstrips.

In addition to regular maintenance a number of improvement projects were undertaken throughout the district. The following indicates some of the

improvements done and highlights occurring during the year.

Construction

During the year 91 km of subgrade were constucted and 185 km surfaced including 42 km of hot mix pavement. Thirteen contracts were tendered to do the district's construction work.

Upgrading of the Yellowhead route between North Battleford and Lloydminster continued. This included the completion of an eight km section of four lane highway west of Battleford. The pavement was done by recycling the old asphaltic concrete surface of one lane, mixing it with new material, and then using this material to pave both the lanes. Shoulder widening began on the section between Highgate and Delmas.

Good progress was again made upgrading Highway 155 between Buffalo Narrows and La Loche. Oil treatment surfacing was done on the section completed in the previous year.

Work began on the Meridian Bridge with construction of the approach fills. This had to be coordinated with the installation of the Lloydminster water line which utilizes the highway right-of-way. The approach fills are susceptible to landslides and are presently being monitored to determine when work can continue.

Major surfacing was undertaken on Highway 26 from north of Edam to south of Spruce Lake. Surfacing was completed on Highway 3 near Paradise Hill, Highway 40 from Neilburg to the Alberta border, and on Highway 21 from Highway 3 to Peck Lake.

Subgrade construction was completed on Highway 17 from Highway 14 to Dillberry Lake Park, on Highway 21 south of the North Saskatchewan River, and on spot improvements on Highway 376 near Richard. Subgrade construction and surfacing also was completed on Highway 4 into Meadow Lake Park.

A spot improvement on Highway 224 and brush clearing on northern highways was undertaken late in the year to provide winter work.

Maintenance

Two surface rehabilitation projects, on Highway 40 near Hafford and Highway 4 south of Meadow Lake, were undertaken to repair and upgrade these sections. A repaving project also was done on Highway 16 east of Lloydminster.

In addition to normal roadway repairs, the maintenance section regravelled some 530 km of roadway. Thirty-three km were clay surfaced and gravelled. Dust treatment using calcium chloride and dust laying asphalt was done on 81 km, mostly in the Meadow Lake Park area. District forces sealcoated 171 km of oil treated surface and 45 km of pavement surfaces in addition to the 285 km following new construction. For snow and ice control, 4 600 t of salt and 86 700 L of Cal-treat were used.

The district tendered the crushing and stockpiling of some 125 000 t of traffic gravel and 113 000 t of bituminous repair aggregate. In addition 44 500 t of bituminous mix for repair was tendered.

Again, major expenditures were needed to maintain the road to Cluff Lake. One special crew spent the majority of the summer months stabilizing the subgrade with 12 200 t of stabilizing material.

The old bridges between Battleford and North Battleford were closed for three months during the summer to allow revamping of the bridge deck and structural improvements.

The addition of former Department of Northern Saskatchewan roads necessitated a re-organization of the maintenance section. A maintenance supervisor for the northern areas was added at Meadow Lake and the Meadow Lake area was divided into three areas with headquarters at Meadow Lake, Buffalo Narrows and Pinehouse.

Design

The design section spent most of the year putting the finishing touches on a number of design projects. Eight tender packages were completed. Major design efforts included Highway 155 to La Loche, Highway 21 north of the North Saskatchewan River and Highway 26 north of St. Walburg. The district is now considered to be well advanced in completion of design projects.

Shareable Programs

The City of North Battleford received assistance for the repaving of 100th Street, and for property purchase and construction of a railway underpass on the southwest quadrant of their ring road. The City of Lloydminster received assistance for traffic signals and a road needs study. Four towns were assisted in upgrading their traffic signs under the Urban Traffic Safety Counter Measures Program. Under the Airport Assistance Program two towns received maintenance assistance and improvement to the Macklin Airport was shared.

Other Activities

Projects in the area of safey improvements included the flattening of approach slopes on Highway 40 east of North Battleford; upgrading of ten bridge rails with approach guardrail, and the improvement of a service road.

Seventeen delineation lights were installed at various town accesses and highway junctions. The lighting of the Buffalo Narrows bridge also was completed.

In the area of tourist facilities the campsite at Stabler Point was surfaced and three maintenance stockpiles were constructed.

Other miscellaneous projects included the repair of six km on Highways 3 and 303 by adding lime to the subgrade and the landscaping of six gravel pits.

The fiscal year 1982-83 saw the establishment of a materials section for the district including a unit for gravel location. Most of the effort for this section was spent in staff training and in obtaining equipment.

Construction Accomplishments in 1982-83

Control Section	Location	Grading		Surfacing						
		Comp.	U.C.	Pavement 'A'	Pavement 'B'	AMOS	Oil	Rubber Asphalt	Rehab.	U.C. 1. Pave 'A' 2. Pave 'B' 3. AMOS
All distances are expressed in kilometres										
1-13-10	Besant T.C.H. Campground						1.92			
1-19	Jct. 32 - Jct. 37 (Gull Lake)	28.06								
1-19-08	Service Roads vicinity of Beverley	1.08								
1-19-10	Beverley Picnic Site	0.07								
2-2	East Jct. 18 - South Jct. 13				0.50				0.70	
2-3	South Jct. 13 - Jct. 43			0.60				10.94	0.61	
2-15	South Jct. 5 - Jct. 27	0.50			0.50					
2-25	La Ronge - Nemeiben River						24.02			
2-26	Nemeiben River - Otter Rapids						1.51			
3-1-40	Access to Erwood						0.14			
3-4	Prairie River - South Jct. 23	3.01							6.03	
3-5-41	Access to Crooked River						0.79			
3-17	West Jct. 26 - Deer Creek Bridge				16.34					
4-4-42	Access to Rhineland						7.73			
4-6-40	Access to Lacadena						31.56			
4-6-41	Access to White Bear						0.36			
4-9	Jct. 7 - Jct. 31								1.10	
4-17	North Jct. 3 - East Jct. 55								3.60	
4-18	West Jct. 55 - Jct.'s 104 & 224	3.12				14.09				
5-4-41	Access to Kuroki						0.34			
6-4-8	Service Road to Cinema 6 South of Regina	0.63								
6-4	North Jct. 39 - Jct. 1	5.13	3.51							1. - 12.25
6-15	Jct. 335 - Jct. 55						13.36			
7-2	Jct. 60 - Jct. 45							14.05		
7-5	Jct. 4 - Jct. 30							20.27	5.40	
7-7	Jct. 21 - Jct. 307								1.60	
8-9	East Jct. 5 - Jct. 49	7.25								
9-5	Jct. 1 - Qu'Appelle River								1.63	
9-13-40	Access to Reserve						0.68			
11-10	North Jct. 16 - Jct. 305								3.06	
11-13	Jct. 212 - Jct. 2								0.81	
12-1	Jct. 11 - Jct. 312							12.96		
12-3	Jct. 40 - Northeast Corner 34-47-8-3	10.98			0.42		8.40			
13-1	Manitoba Border - Jct. 8	5.45	4.56							
13-7	Jct. 28 - Jct. 6				21.21					
13-10	East Jct. 36 - South Jct. 2								0.16	
13-11	North Jct. 2 - East Jct. 58			0.55	3.33					2. - 19.05
13-12	East Jct. 58 - East Jct. 19	11.99			20.30					
13-13	East Jct. 19 - Jct. 4	10.50								
15-3	Jct. 9 - Jct. 10	14.69								
15-6	Jct. 35 - South Jct. 6				16.70					2. - 3.77
16-11	Manitoba Border - West Jct. 8	0.33		0.33				13.10	0.65	

Construction Accomplishments in 1982-83

Control Section	Location	Grading		Surfacing						
		Comp.	U.C.	Pavement 'A'	Pavement 'B'	AMOS	Oil	Rubber Asphalt	Rehab.	U.C. 1. Pave 'A' 2. Pave 'B' 3. AMOS
All distances are expressed in kilometres										
16-16-42	Access to Leslie						0.16			
16-17-41	Access to Kandahar						0.08			
16-22	Jct. 14 - North Jct. 11								1.20	
16-23	North Jct. 11 - Borden Bridge								10.10	
16-24	Borden Bridge - Jct. 340								0.60	
16-27	South Jct. 4 - Bresaylor	10.39		18.65					4.95	1. - 9.65
16-27-08	Service Roads Northwest of Battleford	2.23								
16-29	Jct. 21 - Marshall								2.00	
17-3	Jct. 14 - West Jct. Alberta 14	12.94								2. - 3.60
18-2	East Jct. 8 - East Jct. 9							14.95		
18-3	East Jct. 9 - Jct. 39							0.16		
18-4	Jct. 47 - Jct. 550				7.00					
19-1	Jct. 18 - West Jct. 13	0.05								
20-2	Jct. 22 - South Jct. 15								7.27	
22-2-41	Access to Br-lyea						0.29			
21-12	East Jct. 51 - Jct. 14	20.16	10.90							
21-15	Jct. 16 - East Jct. 3	15.80								
21-16	West Jct. 3 - Bronson Lake Access						36.66			
21-17	Bronson Lake Access - Makwa Lake Grid						2.69			
22-2	North Jct. 8 - East Jct. 9								16.03	
22-2-41	Access to Atwater						13.15			
22-5	Jct. 35 - Jct. 6				21.95					
26-2	Meota - South Jct. 3	1.02			15.62					2. - 3.82
26-3	South Jct. 3 - North Jct. 3	1.20			12.07					
31-3	Jct. 21 & 51 - Salvador	0.80								
35-2	Jct. 18 - Colgate	16.98				16.98				
35-14-41	Access to McKague						6.34			
38-2	Perigord - Jct. 23					14.91				
38-1-10	Greenwater Provincial Park				0.24					
39-4	Midale - Jct. 35							22.49		
40-3	Jct. 340 - Jct. 16								8.06	
40-6	Neilburg - Alberta Border			14.25						
45-2-40	Access to Dunblaine						7.47			
47-2	North Jct. 39 - Jct. 13				11.09				0.26	
47-5	East Jct. 1 - South Jct. 22				8.94					
47-6	South Jct. 22 - Jct 10				22.81					
49-4	Okla - Jct. 38				15.30	5.64				
51-3	West Jct. 21 - Major	1.40								
55-6	South Jct. 35 - North Jct. 35								0.46	
55-7	North Jct. 35 - Jct. 106								35.98	
55-7-43	Access to Love						0.41			
55-12	Big River - Jct. 124						15.99			
104-01	Jct. 4 & 224 - Keeley Lake Access	0.50					0.25			
106-01	Jct. 55 - Jct 120		26.83							
106-03	Jct. 165 - East of Deschambault						2.25			
106-04	East of Deschambault - Jct. 135						5.10			
155-03	Buffalo Narrows Bridge - La Loche	23.40					22.70			
163-02-09	Access to Red Earth I.R.	0.85								

Construction Accomplishments in 1982-83

Control Section	Location	Grading		Surfacing						
		Comp.	U.C.	Pave ment 'A'	Pave ment 'B'	AMOS	Oil	Rubber Asphalt	Rehab.	U.C. 1. Pave 'A' 2. Pave 'B' 3. AMOS
All distances are expressed in kilometres										
209-01-10	Moose Mountain Provincial Park						1.60			
210-02-10	Echo Valley Provincial Park						0.25			
261-01-10	Saskatchewan Landing Provincial Park	1.00								
263-01-10	Access to Murray Point Campground						0.70			
312-01	Jct. 2 - Jct. 11	19.30				9.30				
322-01-41	Access to Saskatchewan Beach						1.23			
340-01	Jct. 16 - Jct. 40						1.59			
343-01	Jct. 4 - Simmie	3.60					3.60			
343-01-40	Access to Darling's Beach	0.04					0.04			
349-01	Jct. 35 - Jct. 6						14.79			
376-05	Jct. 40 - Jct. 324	4.06								
Totals for	District 1	78.75	10.90				50.76	20.27	8.10	
	District 2	28.19	8.07	1.15	85.38	16.98	5.29	48.54	9.00	31.30
	District 3	22.27		0.33	63.99	20.55	14.15	13.10	18.31	3.77
	District 4	19.80			0.50	9.30	14.79	27.01	14.96	
	District 5	14.84	26.83		0.42		79.87		43.28	
	District 6	74.66		32.90	44.03	14.09	65.89		18.61	17.07
Total	Kilometres	238.51	45.80	34.38	194.32	60.92	230.15	108.92	112.26	52.14

Regina District Tackles Multi-faceted Construction Project

The Highway 6 widening project from three km south of Highway 306 north to Regina combined subgrade construction with lime stabilization, reclamation of shoulder base and asphaltic surface course and the construction of soil stabilized gravel shoulder base course and a recycled hot-mix bituminous surface course into one unique and complex job. Approximately 65% of the job has been completed.

W.F. Botkin Construction of Regina was the prime contractor with Paul Morsky Construction of Regina handling the earthwork as a sub-contractor. Engineering services were provided by Regina District construction engineering personnel.

The contractor salvaged 26 000 m^3 of shoulder base course with a side dump front end loader and tandem trucks. The salvaged material was stock-piled at several sites for later re-use as a new shoulder base course. Approximately 14 900 t of asphaltic surface course was reclaimed with a Ray Go Barcomill 800, by removing the top one inch of the old pavement. This reclamation process

Loader adding reclaimed asphaltic concrete to the hot-mix plant.

improved the pavement ride quality and made reclaimed material available for recycling to produce a new asphaltic surface course.

To widen the shoulders, 187 315 m^3 of earth excavation was required. The heavy clay material required that 2% lime be added to the top 18" of the subgrade structure.

The surfacing structure was constructed using 46 000 t of soil stabilized gravel base course on the shoulders and 30 000 t of recycled hot-mix bituminous surface course. The recycled hot-mix bituminous surface course was produced in a conventional hot-mix plant using a mixture of 60% virgin aggregate and 40% reclaimed material and provided a two inch thick mat on the road.

Some difficulty was encountered in producing the hot-mix bituminous surface aggregate as nearly 40% of the virgin aggregate had to be rejected as it did not meet the department's hot-mix bituminous surface course specifications. The use of reclaimed shoulder base course, reclaimed asphaltic surface course and difficulty in producing hot-mix bituminous surface aggregate all are indications that high quality aggregate sources are becoming scarce.

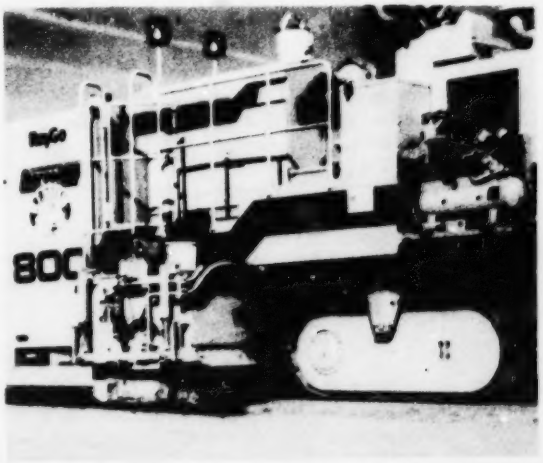
The project was undertaken with traffic on the highway and traffic accommodation was a major concern. Two lanes were kept open for traffic throughout the project, whether the two normal driving lanes or one lane plus the shoulder. Normal traffic flow was restored if possible after working hours.

The official speed was reduced to 60 km/h for the duration of the project to ensure traffic safety and flagpersons and signing provided traffic control throughout critical construction operations. Between three and four sets of flagpersons were required for the length of the project as several operations took place simultaneously.

The successful completion of this project will be a credit to both the contractors and the engineering staff.

Contractor reclaiming asphalt concrete from existing driving lane.

Contractor spreading lime on the shoulder sub-grade.



RayGo Barcomill 800 reclaiming asphaltic concrete from existing driving surface.

Engineering Division

The mission of the division is to develop standards, policies and procedures which will lead to an efficient road transportation system. This is accomplished with a group of seven branches staffed by engineering specialists.

Organizational restructuring occurred to strengthen both the Geotechnical Branch and the Maintenance Branch. Both branches had been previously headed by a single branch head, however, with the change, these were totally separated and the Principal Geotechnical Engineer appointed. This action will strengthen the Geotechnical Branch which also carries heritage and environmental liaison duties. This will also increase Maintenance Branch staff availabilities for developing policies that will optimize our maintenance activities, as well as allow greater resources in assessing vehicle weight and dimension regulatory policies.

The division has emphasized reviewing procedures and methods which may improve the department's efficiency. Emphasis has been in research and in reviewing the department's management systems needs.

Alternate fuels are being assessed by the department to ensure adequate knowledge is available to make informed decisions on energy resources. Twelve propane powered trucks are being utilized and assessments are being made of both factory modified units and gasoline units which have been modified in the department's repair depots. One vehicle using compressed natural gas also is being operated and assessed.

Research has continued in carrying out a feasibility study in utilizing solar heat to provide the energy for maintaining asphalt storage tank temperatures. Laboratory research studies were completed which indicate that modifications to culvert inlets can increase their flow capacities by up to 25%. Successful implementation would result in significant savings to the department.

The department is active in joint research projects with other agencies in Canada to ensure maximum co-ordination and return on research investments.

A study was initiated to determine the department's need in a management system for the almost 10 000 km of pavement within the provincial network. This report will be finalized during the next fiscal year.

Changes in policies and regulations have allowed improved transportation productivity without compromising highway safety or maintenance costs. These changes were implemented after consultation with industry and the adjacent provinces. A major effort will continue in this area.

Major field testing programs continue to provide monitoring of the provincial highway system's riding quality and structural adequacy. Studies also are taking place to develop a laboratory test to identify aggregates which are subject to aggregate asphalt separation under traffic and environment.

Technical papers to learned societies have been delivered by members of this division. The systematic assessment of existing procedures and new opportunities have ensured that this department is on the leading edge of road transportation technology.

M. F. Clark
Associate Deputy Minister (Engineering)

Engineering Division

(as of March 31, 1983)

Hon. James W. Garner
Minister

J.R. Sutherland
Deputy Minister

M. F. Clark
Associate Deputy
Minister (Engineering)

G. T. Stanger
Road Design
Engineer

H. A. Eley
Materials Testing
Engineer

G. Heiman
Surfacing
Engineer

B. D. Martin
Maintenance
Engineer

J. Palaschuk
Director of
Equipment

R. W. Culley
Director of
Research

R. A. Widger
Principal
Geotechnical
Engineer

Surfacing

Surfacing Branch is responsible for the management of the provincial highway pavements. The branch develops and implements policies, standards and procedures that are used in the design, construction and maintenance of pavements.

The branch develops the annual rehabilitation program that was 14.9 million dollars in 1982-83. The rehabilitation work is increasing annually as the highway system is maturing and the pavements constructed in the 1960's and early 1970's are reaching the end of their service life.

Highlights for 1982-83:

- A written report was produced on the benefits of using rubber crack sealers for asphalt concrete pavements and an implementation plan developed.
- New pavement surface standards were developed for the functional standards review committee.
- Completion of the Pavement Technology Manual.
- A paper was presented at RTAC on the Department of Highways and Transportation's overlay maintenance test section constructed in 1975.
- Presentation of Department of Highways and Transportation's pavement sealing procedures at a conference for the Northwest Territories at Faro Yukon.
- Commission a consultant to study the effects of increasing GVW's on highway pavements by evaluating the IMC haul on Highway 9.

Asphalt Concrete Recycling

The completion of recycling projects on Highways 22, 16 and 6 were successful and have provided the required information to develop recycling guidelines. The recycling of asphalt mixes on the existing pavements saves asphalt, aggregate and delays the requirement of widening subgrades.

Pavement Crack Sealers

Over winter observations of four pavement crack sealers show that there may be a solution to the thermal cracking and the need for annual crack sealing. The final report and implementation plan will be complete in 1983/84.

Other Activities

The branch provides technical training for department staff, serves on the Canadian Specification Board and has representatives on technical committees of three national organizations.

Equipment

Equipment Branch is responsible for managing the department's fleet of equipment. Staff in the branch are constantly reviewing and updating policies, procedures and standards related to equipment operation and maintenance.

The majority of the department's equipment is used to maintain the highway system. Other uses are for grading and oiling roads, constructing and repairing bridges and for materials testing and research. The department's current fleet consists of 4,021 units including trucks, tractors, graders, mowers, snowplows, trailers, camp equipment, rollers, sweeper brooms and heavy construction equipment.

Effective January 1, 1983, Equipment Branch assumed responsibility for repair depots at Prince Albert, La Ronge and Buffalo Narrows. These repair depots were transferred to Highways and Transportation as a result of the unification with the Department of Northern Saskatchewan. The department also assumed responsibility for Northern Saskatchewan's equipment fleet of 586 units.

In 1982-83, 2.2 million dollars was expended on new equipment. Acquisition of this equipment along with equipment which was transferred from the Department of Northern Saskatchewan brought the capital cost of Saskatchewan Highways and Transportation equipment fleet to 80.7 million dollars. Ninety-seven requisitions were issued to purchase major equipment, support equipment, shop equipment and tools.

The cost of operating the department's equipment for the year was $22.1 million. Repairs cost $9.2 million, fuel $6.4 million and $6.5 million was spent on depreciation, licence and administration.

Diesel engines are now being purchased for all medium and heavy duty trucks. The additional cost of diesel engines is easily recovered through longer engine life and better fuel economy.

Twelve department owned vehicles are being used in a propane fuel test program. Four units burn either gasoline or propane. Seven units were converted to burn propane only, and one new factory modified unit was purchased. Test data will be compiled for a period of 24 months. A decision will then be made as to additional conversions or purchases.

The department is testing a unit fueled by compressed natural gas (CNG). The test period is for one year.

Rental rates for department-owned equipment were calculated on a provincial basis in addition to the individual management unit rates.

Equipment Branch sets rental rates for equipment that is used on an hourly basis on highway construction projects. These rates are used as a guideline by the construction and roadbuilding industry. The rates were distributed to 250 contractors, equipment dealers, trucking firms, towns, cities and other government departments and agencies.

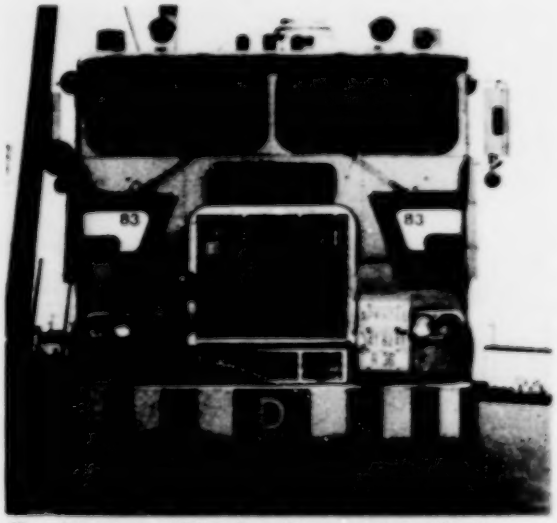
Administration of the Central Vehicle Agency account becomes the responsibility of Equipment Branch effective April 1, 1982. Expenditure distribution as related to vehicle charges required a new computer program during the year. The 260 full maintenance leased vehicles were driven 7.6 million km.

The Central Vehicle Agency are now purchasing all vehicles under 4 500 kg gross vehicle weight and leasing them to the department either with or without a maintenance contract.

In January, 1983 the department initiated a new equipment management system. This system will provide the equipment users and management staff with information to better manage the department's equipment fleet.

In 1981-82 the department began converting the mobile radio communications system from a single frequency system to a four frequency radio telephone network. The conversion has been completed except for the northern areas, which will be completed in 1983. This new system will cover 95% of the provincial highway system.

Maintenance



The department introduced a new sign with the revised traffic accommodation policy for over-dimension loads. The 'D' is bilingual and denotes 'danger' or 'dimension'. The use of the sign was adopted as a national standard and is expected to be adopted by all provinces. At least five provinces other than Saskatchewan have adopted the sign.

The department completed design and construction of a large high speed pavement marking unit. This machine, using state-of-the-art technology employs microprocessors, a television guidance system and is expected to operate at speeds as high as 40 km/h.

Program and Standards

During 1982-83, the department was responsible for the maintenance of 21 740 kilometres of provincial and public highways. This total included 8 447 km of pavement, 1 200 km of asphalt mat on subgrade, 8 682 km of oil treatment and 3 077 km of gravel plus 334 km of tourist facility roads. This means that 53% of the surfaced highways are now free of spring bans. The department also assumed responsibility for 1 700 km of northern highways, previously maintained by Department of Northern Saskatchewan.

In 1982-83 the maintenance budget increased by 12.1%, while inflation for major components such as asphalt and equipment rentals, were increasing by up to 15%, and the system increased by 170 km. Despite these cost increases and the increase in the system maintained, the department was able to maintain or exceed its objectives. For oil treatments a riding comfort index of 5.5 was achieved versus the 5.4 objective.

The Maintenance Practice and Procedures Manual had eight sections relating to surface maintenance techniques added. Sixteen sections relating to surface and right-of-way maintenance were added to the Maintenance Policy and Standards Manual.

Pavement Marking

During 1982-83 the department striped 21 380 km of centerline and 15 250 km of shoulderline. For the third consecutive year the department was able to set a production record for the amount of striping achieved in one month. The record production of 7 469 km occurred in October, 1982 and represented an 11.5% increase over the previous record. Design and construction was completed on a second large high speed striper.

Transportation Section

The department introduced several new policies for overweight and overdimension loads. These policies were designed to protect the travelling public, yet foster economic transportation of goods.

- A new policy on the transportation of round bales greatly improved load security, yet still allows adequate payloads.
- The use of overlength combination overlength vehicles on four lane highways was extended to all haulers that wished to enter into the required agreement with the government. These agreements, while allowing overlength vehicles, do not allow for any weight increases and set stringent requirements for the vehicles and their operators.
- Also, a new policy allowing existing semi-trailer units to be converted to A-train combination vehicles while exceeding a prescribed regulation on vehicle configuration was introduced. The policy requires an agreement with the government specifying driver and vehicle qualifications. This change allows for more economic transport of goods and the conversion of units has provided direct employment for local manufacturing industries.
- A revised policy, including a new sign, was introduced to improve traffic accommodation while transporting overdimension loads.

The vehicle weight and dimension regulations were amended to allow a 10% increase in axle weights during the winter month. Also, the use of combination vehicles was extended to northern highways. Both changes will greatly improve the efficiency of transportation in Saskatchewan, particularly the northern part of the province.

During the year a total of 21 519 permits were issued for overweight and overdimension loads. This represents a slight increase over the past year but is part of a continuing decline in permits issued. This trend reflects changes to simplify and deregulate the issuance of overweight and overdimension permits. The use of multi-trip permits continues to grow and has shown a 116% increase over the past five years. These multi-trip permits reduce the administrative workload for the department and for transportation companies.

Other Activities

The branch continued to maintain membership in national and technical societies. The branch head continued as chairman of a committee to develop uniform specifications for common engineering materials used in western Canada. The branch head is also chairman of an interdepartmental committee working with SUMA to improve vehicle weight and dimension control in urban areas.

The department introduced a new sign with the revised traffic accommodation policy for overdimension loads. The 'D' is bilingual and denotes 'danger' or 'dimension'. The use of the sign was

adopted as a national standard and is expected to be adopted by all provinces. At least five provinces other than Saskatchewan have adopted the sign.

The department completed design and construction of a large high speed pavement marking unit. This machine, using state-of-the-art technology employs microprocessors, a television guidance system and is expected to operate at speeds as high as 40 km/h.

Research

Materials Section

Branch staff continued several long-term research projects during 1982-83, including studies on the performance of staged and 'thin' pavements; pavements with sulphur or rubber; ash from coal-fired power stations; thin overlays on badly-cracked pavements and rubberized crack sealants.

Field installations of large diameter plastic culvert pipe indicated this material would be a useful alternative to conventional metal or concrete pipe in certain locations.

The pavement test track was used for testing the structural equivalency of lime modified Regina clay before and after freeze-thaw cycling. Data will be used to improve design methods for thin pavements on expansive clay subgrades.

Transportation Section

The transportation section continued its research into design concepts for roadway illumination and for safety barriers. Projects on improving the visibility of snow plows to motorists and on more durable traffic markings were continued.

A major study of the cost effectiveness of equipment usage by department units is continuing.

The effect of inlet geometry on culvert hydraulics was studied. Findings indicated a retrofit of an enlarged inlet section would increase the overall capacity of a culvert significantly and inexpensively. It also would permit use of smaller diameter pipe at many locations.

Other Activities

The branch maintained active membership in national and international technical societies. The director continued to serve on the Transport Canada Highway Research and Development Advisory Board and was elected chairman of the RTAC Council on Cooperative Research.

Branch staff issued four technical reports, attended five out of province conferences and served on steering committees of three multi-province research projects.

Materials Testing

More than 15,000 tests were conducted in the central laboratory to evaluate materials for highway design, construction, performance and research. The lab continued a study into methods of predicting stripping in asphalt pavements and in rubber modified asphalt seal coats. Several additives were evaluated for improving durability. A study also was made into causes of hardening of maintenance asphalt mix stockpiles. A ligno sulfonate bi-product of pulp manufacturing also was tried, with some success, as a base course prime coat. Testing services also were provided to the Department of Rural Affairs for bridge foundation analyses. In addition, six coring machines and 93 field testing laboratories provided on-the-job testing. Three of these units were provided to the Department of Municipal Affairs and two were used as enclosures for automatic weigh scale electronic equipment. Forty-five portable nuclear density meters, one borehole meter and four asphalt meters were serviced and calibrated for construction project use. Compaction studies at a number of highway locations were continued and a study of bearing strengths was continued using a dynamic vibratory system.

A total of 42 000 km of paved and oil treated surfaces were tested with car road meters to

assess riding quality. The tests aid in maintaining appropriate levels of riding comfort on various highway systems.

Benkelman beam deflection tests were conducted on 1 800 km of pavements at 13,600 individual locations. The tests aid in determining load carrying capacity of pavements and in designing pavement structures. Skid tests were performed on major bridge decks and overpasses and several sections of provincial highways to detect potential slippery areas.

A rotary drill bored a total of 4 400 m of test holes to investigate foundation and slope stability conditions for bridge and valley crossing construction including major foundation testing for a proposed bridge over the North Saskatchewan River near Borden. Other sites include the proposed Meridian Bridge, valley slopes on the Souris River and at Muddy Lake. Testing on the Tramping Lake Causeway and a bridge near Clemenceau was provided to the Department of Rural Affairs. A study of slide problems on the North Saskatchewan River was continued in the Petrofka to Prince Albert area.

Branch staff provided supervisory assistance for several construction projects. Special assistance was provided to head office staff in the development of asphalt mix designs for use in recycled pavements.

Additional emphasis was placed on materials schools for training of maintenance staff.

Photo courtesy Saskatoon Star Phoenix

Investigating foundation conditions and river bank stabilities for the proposed new bridge across the North Saskatchewan river near Borden was completed in early 1983. Here a rotary drill crew is shown sampling through the ice near the original bridge to establish piling requirements for the new bridge.

Road Design Branch

Road Design Branch staff are responsible for eight major areas:

- Developing and updating design standards.
- Reviewing geometric and drainage designs.
- Interchange designs and general location reports.
- Reviewing highway lighting design.
- Preparation of and updating manuals pertaining to design activities.
- Providing advice and guidance on matters pertaining to geometric design, culvert, and highway lighting designs.
- Developing standards and policy, and direct road-side development permit operations.
- Operation of the department's air photo library.

In addition to the above activities, metric conversion remained a significant activity this year.

Metrication

Metrication of the major standards was previously completed. Conversion of minor standards is 75% completed.

Manuals

Work continued on the updating and metric conversion of the Design Manual.

Development Permits

Staff continued the review and update of the permit policy. Approximately 405 permits were issued and 340 subdivision requests were reviewed.

Safety

Safety remains a most important aspect of geometric design. Safety consideration must be balanced against costs to ensure that safe economical highways are achieved.

Air Photo Library

Library staff acquired 1 305 line km of photography and 381 mosaic sheets. Tendering and contract supervision was handled by Central Survey and Mapping Agency.

Geotechnical

The major responsibilities of the branch are development of geotechnical standards for subgrade construction, site investigations for major valley crossings, provision of technical advice to other units in the department and coordination of the department's environmental and archaeological submissions.

Standards and Policies

Work continued on studies related to geotechnical standards and policies with special emphasis placed on lime modification and select subgrade layers. A draft for a geotechnical pre-engineering report also was developed.

Site Investigations

Site investigations require test drilling, sampling of soils, testing of soil properties and engineering designs.

The site investigation for the North Saskatchewan River crossing on Highway 17 north of Lloydminster was completed. Abutment fill placement was started and controlled by monitoring of instrumentation.

A joint site investigation research program with the University of Saskatchewan was continued to provide a geological-geotechnical framework for future construction along the North Saskatchewan River.

The site investigation at the proposed new Borden Bridge site was started.

Staff Training

The branch continued its role in providing technical training to staff in other branches and divisions. The branch assisted in the training of a new materials engineer for the Yorkton and North Battleford districts.

Environmental Liaison

Geotechnical Branch continued its role of acting as the department's official liaison with the Department of Environment. This involves a compilation of the department's capital program for submission to the Department of Environment for environmental classification. The branch also reviewed and provided comments on environmental legislation or guidelines.

The branch became the official liaison with the Department of Culture and Recreation on archaeological concerns relating to the capital program.

Support Services Division

(as of March 31, 1983)

The mission of the Support Services Division is to provide services essential to the overall efficient management and operation of the department.

The primary services are in the areas of staffing, personnel management and training, financial management and control, management and administrative systems, computer services, property acquisition and property management.

Organizationally, the division is structured on a functional basis with each of four branches (Personnel, Management Services, Financial Services, Surveys, and Central Survey & Mapping Agency) providing the department with a specialized service.

The Central Survey and Mapping Agency (CSMA) has been developed to the stage where the unit is capable of providing legal survey and mapping services to all departments and agencies of government. Consequently, CSMA will be transferred to the Department of Supply and Services on April 1, 1983 in fulfillment of a significant step in the long range development plan for the agency.

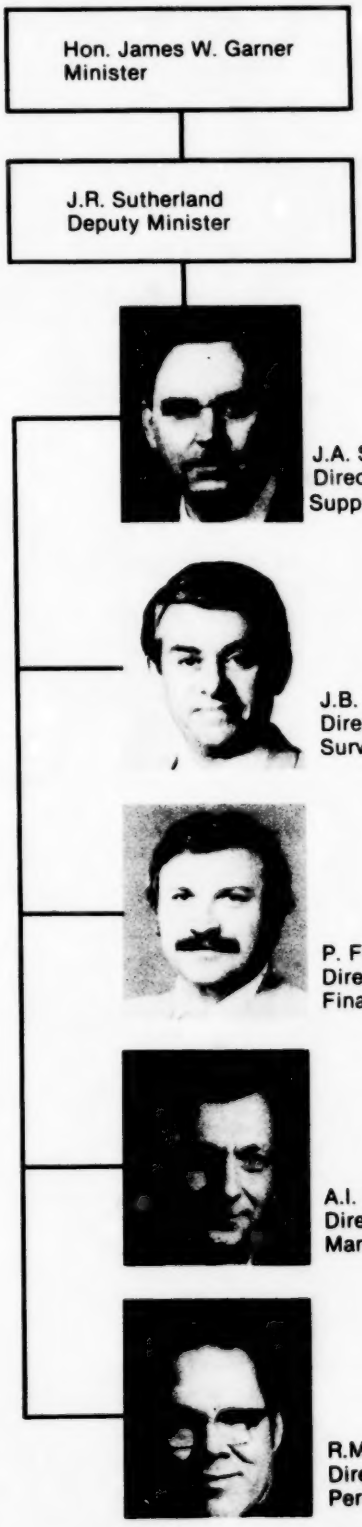
In conjunction with the transfer of CSMA to another department, the Surveys Branch of the Department of Highways and Transportation (DHT) will cease to exist. To replace it, the department has organized the Property Services Branch to provide the property acquisition and property management services previously provided by the Surveys Branch.

On January 1, 1983, the Roads and Transportation and the Equipment Branches of DNS were realigned with DHT. A further realignment, in which the Transportation Agency of Saskatchewan, The Transportation Policy Unit of the Department of Agriculture and the Highway Traffic Board will be transferred to DHT, will occur on April 1, 1983.

The department's signing authority document was totally updated for implementation at the beginning of the 1983-84 fiscal year.

Division staff were involved in many other significant services in the department. Details of specific programs and accomplishments are provided in the following individual branch reports.

J.A. Schwartz
Director of Support Services Division



Personnel

An organization's ability to meet the challenge of its mandate is directly related to its human resources.

Personnel Services Branch is responsible to assist in meeting the challenge through the provision of centralized services and assistance in staff training and development, contract administration, staffing services, employee and public safety programs, and the development and recommendation of appropriate related policies.

Staffing and Classification

There was a significant increase in classification, staffing and related activities due to the realignment of the Northern Roads and Transportation Unit of the Department of Northern Saskatchewan with this department. The addition of the Highway Traffic Board, the Transportation Agency and the Transportation Policy Unit along with the movement of the Central Surveying and Mapping Agency from this department, and the conversion of 461 labour services employees to public service status all added to an increased work load.

Labour Relations

It has been an active year in labour relations. A branch employee was again involved in negotiations. During the year 66 grievances were received, 40 of which have been resolved and the remaining 26 are in various stages of the process.

Training and Development

The need is always present to develop and upgrade our employees in order to provide the services demanded of a modern highway and transportation organization.

Technical courses provided during the past year included: Contracts/Specification and Law; Highway Geometric Design; Phase 1 Survey and Notekeeping; and Air Photo and Terrain Analyses.

The Senior Management and Management Development programs were continued with the following courses offered: Tactics and Techniques in Negotiations; Government Project Management; Effective Writing; Ideals Concept Workshop; Managing Stress; M4 Users Role Computer Systems. Total enrollment in these classes was 216.

Attendance at courses organized by the Public Service Commission was 123. Other miscellaneous short courses and night classes were attended by 188 employees. Educational leave was granted to three employees and three others attended the ADD Program.

The University of Regina Co-op Engineering Program placed five students with this department during the year.

The driver improvement, classification and endorsement program received special emphasis in order to comply with driver licensing regulations. Sixty-seven classes were held and over 1,900 training days were provided in specific skill areas.

Safety Section

A major objective of the department is to provide a safe work place for our employees. The promotion of safety both on the job and at home, forms an intregal part of our industrial safety program.

Safety training was provided throughout the department as follows:

- 346 person days of first aid training
- 402 person days of defensive driving and professional driver improvement
- 113 person days of fire fighting training

Safety inspections of department worksites were conducted on 238 occasions to ensure that public safety is being considered, and 220 times to review ongoing practices and procedures. Branch staff attended 16 local and regional Occupational Health and Safety meetings, and four Central Safety Committee meetings.

This branch conducted work site safety meetings that were attended by 715 employees and covered a wide variety of topics.

During the calendar year there were 116 medical aid claims and 83 lost time claims processed with 2,612 days lost from work due to injuries.

Management Services

Management Services Branch is responsible to provide, assist in and promote the analysis, development, implementation, operation and maintenance of effective and efficient Management Information Systems for the department. Some of the major activities are:

- Develop, co-ordinate and operate the Management Information System within the department.
- Design, develop and implement effective and logical systems and procedures.

- Provide data processing services.
- Train user branches and districts in the operation of data processing equipment and related procedures.
- Provide liaison with other departments and agencies of government in the carrying out of assigned duties.
- Undertake branch organization studies.

Computer processing is an integral part of the department's operations. Changes in information needs and changes in computer capabilities has brought about a need to expand computer equipment installations. These changes include:

- District terminals were upgraded or changed. Each district now has a computer terminal with three CRT stations, a 300 line per minute printer and sufficient computing power to do at least two processes at one time.
- Computer terminals were installed in the repair depots to process or transmit and receive information on equipment management, stores inventory and shop management.
- An on-line facility was installed in Head Office to assist in an on-line program development and on-line updating of files by users, thereby increasing productivity. This facility consists of seven work stations and a printer. Three of the work stations are located in user branches.

Computer services which are an integral part of the department's operations are controlled from the head office Management Services Branch.

New Systems Implemented This Year

- A new Equipment Management System was obtained from TNI Incorporated and implementation started in January, 1983. This system, when fully operational, is to fulfill our needs for;
  - stores inventory;
  - shop management;
  - equipment management.
- A new Capital Budget Control System was implemented for the 1983-84 fiscal year. The districts can now update their expenditure estimates, when they occur, from their terminals.
- The department has developed and implemented a new travel advance system. A system previously used by other departments was modified to meet our needs and implemented in March, 1983.
- The slope indicator system was rewritten to handle metric measurements and calculations. Input now can be in either Imperial or metric units with the outputs and calculations being in metric units.
- The expenditure distribution system was modified to allow users to retrieve expenditure information at their own locations. This allows for more timely information and eliminates the need to produce large reports centrally for distribution to districts.
- Major modifications were required to the labour service payroll to accommodate the changes in the collective bargaining agreement and the transfer of employees from labour service to public service.
- A branch organization study was done for the new 'Property Service Branch'. This new branch is responsible for property acquisition and the management of property rights under department jurisdiction. Many functions, previously the responsibility of the Surveys Branch, have been transferred to the Department of Supply and Services with CSMA.

Surveys Branch & Central Survey And Mapping Agency

Surveys Branch

The Surveys Branch carries out legal survey, land negotiation, document processing and property management activities enabling the department to acquire and administer lands for the construction of highways and public improvements.

Legal Surveys

Four department legal survey crews were in the field from April to early December. The department's legal survey requirements for 1982-83 highway construction projects were met and some legal survey projects from the Grid and Main Farm

Access Program also were completed by our crews to supplement the accomplishments of the private sector on this program.

The crews completed the survey of 197 km of provincial highways, 322 km of grid and main farm access roads, 37 km of reference surveys, 25 public improvements and 25 miscellaneous surveys.

Property Acquisition

The department's land requirements for the year were successfully acquired by staff members who secured 900 land purchase and other land related agreements. The branch maintained a district land negotiator in five of the six district offices and continued with the practice of staff working outside their district boundaries when work loads varied from district to district.

Plan Processing

The examination and registration of plans of survey, in respect to the Provincial Highway Program, was completed on time to meet construction schedules and satisfactorily maintained in respect to the Grid and Main Farm Access Road Program.

A significant increase in total plan processing was achieved over 1981-82 with a 25% increase in plan examinations and 26% in plan registrations.

Property Management

The volume of requests for consents, permits and other administrative considerations with respect to departmental properties continued at an extremely high level, however, Property Management staff were able to provide a satisfactory service.

The grid road legal survey program was continued at the normal average level in 1982-83. Private industry completed 729 km and 322 km were added by department staff.

1982-83 Accomplishments

Provincial highway surveys	197 km
Public improvements and miscellaneous surveys	50 plans
Grid roads and reference surveys;	
— Industry	729 km
— In-house	322 km
Plans of surveys recorded; Including highways, subdivisions, pipelines and miscellaneous	860
Highway plans of survey examined and processed	418
Highway plans of survey registered	434
Property agreements secured	900
Consents and permits issued	1,015

Central Survey and Mapping Agency

The purpose of the Central Survey and Mapping Agency is to provide and co-ordinate investment in the basic survey, mapping and land data base infrastructure of the province; to provide a centralized survey and mapping service to provincial departments; and to fulfill statutory responsibilities of the Controller of Surveys under the Land Surveys Act, including administration of the Provincial Township System.

Surveys

The Inertial Survey System (ISS) program to establish a province-wide second order geodetic control survey base for all other survey, mapping and land information was continued and cost shared with Geodetic Survey of Canada. 80% of Saskatchewan's subdivided area is now completed.

- 200 stations were established and referenced to the provincial township system in the Yorkton-Kelvington and the Weyburn-Bengough areas.
- 382 stations were targeted for federal ISS measurement, and CSMA air photo identifications in the Estevan-Broadview area.
- Saskatchewan consultants completed 75% of the provincial work.

Under the Northern Control Survey Program, the fundamental vertical control survey system of the province was continued northwards along Highway 155 for 174 km to Cluff Lake.

The Urban Control Survey Program continued:

- The Battlefords area horizontal control survey network was completed. Additional connections between the control survey system and legal boundary monuments were made to enable the legal boundaries in the Battlefords urban area to be co-ordinated into a multi-user computerized property boundary overlay.
- At Yorkton the horizontal control survey network was connected to newly installed geodetic (ISS) stations.
- At the request of the City of Lloydminster, the provinces of Saskatchewan and Alberta, and the city entered into an agreement to establish, maintain and jointly fund a surveying and mapping system. A horizontal and vertical control survey network was established as the first stage in implementation of the agreement.

Control survey networks were established for mapping purposes for the Department of the Environment, at Cumberland House and Gravelbourg, and for the Department of Highways and Transportation, covering their bridge project at Borden.

Under controller of surveys activities, daily administration of the provincial township survey system continued:

- Inquiries, boundary problems, and requests for information from the general public, other departments and the survey profession were handled on a daily basis.
- Seven township plans were revised and new editions approved and confirmed.
- Examination of five major mineral lease plans and six Indian land claim plans were completed.
- Special survey instructions were prepared in liaison with Sask Power Corporation, for the legal survey of their Codette Lake Reservoir near Nipawin.

For the Department of Northern Saskatchewan:

- 57 plans of surveys involving Northern Crown Lands were examined and confirmed by the Controller of Surveys and 153 northern land descriptions were provided to enable the disposition of rights in northern crown lands.

For the Department of Tourism and Renewable Resources:

- Provincial lands were subdivided in connection with departmental recreational subdivision programs, and property boundary projects were completed in connection with wildlife lands.
- Northern lightning monitoring antennae were orientated in three different surveys.

Geodetic co-ordinates were computed for some 300 control surveyed township corners as the first step towards the co-ordination of all section corners.

The use of computers for processing surveys increased. Major survey computation and plotting software was brought into regular use. These programs optimize co-ordinate values and speed processing, error detection, and plotting.

C.S.M.A. participated in two meetings of the National Committee for North American Datum Adjustment (86) as the initial steps in Saskatchewan's preparation for the planned major adjustment of the existing 1927 North American Geodetic Datum.

Mapping

Aerial photography contracts were co-ordinated and administered by CSMA on an inter-departmental basis, and also co-ordinated with federal flying programs to achieve economic benefit and universal increased coverage in Saskatchewan. Eight thousand line km of 1:60,000 photography were completed by CSMA in conjunction with the Township Photo Map Program.

Production of the 1:20,000 scale township photo maps was continued. Three hundred sheets were printed in 1982-83 bringing the total to 3,300 sheets covering 85% of the subdivided area of the province. Ten thousand copies of these maps were purchased through the Map and Photo Library by departments such as Urban Affairs, Rural Affairs, Agriculture and Mineral Resources as well as rural municipalities and the public.

Large scale mapping projects covering parts of the Cities of Yorkton, Regina, Saskatoon, Swift Current and Prince Albert were completed.

Special maps were prepared to aid in the design and construction of a proposed new bridge and highway alignment near Borden. One feature of this project is that geotechnical studies can analyze topography changes from the 1940's to the present. A special photomap series was produced for SMDC and Saskatchewan Mineral Resources covering areas of geological importance lying north of Lake Athabasca.

C.S.M.A. participated in two meetings of the National Committee on Digital Mapping Standards. These standards are now available to ensure that Saskatchewan's digital mapping procedures evolve in a way that is compatible with Canadian and worldwide standards and procedures.

In addition, the agency was frequently called upon for technical assistance and for production items by provincial departments requiring mapping activities.

Data

Continuous research and computer program development was carried out for the analysis and storage of control and legal survey data to form the primary positional base for the public and government agencies to reference and correlate their own position related information.

Using the control survey connections and legal survey plans, co-ordinates were calculated for all boundary corners in the Battlefords urban area.

Preliminary co-ordinates for all township corners in the subdivided portions of Saskatchewan were catalogued and programs developed for the generation of theoretical section corner co-ordinates. This information was provided on request as a first phase 'Saskatchewan Township Co-ordinate File' to oil exploration companies and other users.

Calculations were completed and comparisons made for selected I.S.S. surveyed areas, in order that discrepancies can be resolved.

The Map and Photo Library and Sales Facility

The Map and Photo Library continued its role as C.S.M.A.'s distribution centre for products and

information concerning the basic provincial and federal mapping products; specially requested photographic products; thematic maps such as air facilities maps and canoe route maps; aerial photography; legal and geographic survey information; and place name information.

Sales increased to $195,000; 30% above 1981-82.

Approximately 6,000 requests for sales, loan, and information were processed in servicing the general public, provincial agencies and other levels of government.

Centralization of Activities

Plans were finalized for the transfer of the Central Survey and Mapping Agency from the Department of Highways and Transportation to Saskatchewan Supply and Services on April 1, 1983.

Financial Services

Financial Services Branch is responsible for the financial affairs of the Highways Appropriation and Highways Revolving Fund.

The branch processes payments and receipts, maintains records and produces financial and statistical reports. The branch also schedules and co-ordinates preparation of the department's annual administrative and revolving fund budgets.

Payment of Accounts

In 1982-83 the accounting section for Highway Appropriation processed 43,651 invoices while the accounting section for the Highways Revolving Fund processed 59,718 invoices. These payments were processed within the guidelines set out by Saskatchewan Finance.

Receipts

Cash receipts through appropriations section amounted to $8,344,787.

Payroll

The payroll section produced 42,034 cheques for hourly paid employees along with personal statistical records. Payment for wages, travel and sustenance amounted to $31,439,318. The labour service portion of the payroll was reduced by approximately 400 employees due to the conversion of labour service employees to salaried staff. This has resulted in transferring duties of one accounting clerk from labour service to salaried payroll.

Highways Revolving Fund

The Highways Advance Account Management Review Committee, established in 1980-81 to examine in detail organizational and financial systems, concluded its study in the fall of 1981.

Major recommendations from the study included changes in financial and budgetary management information systems, a revised equipment management information system and a new materials (inventory) management system.

The implementation of some of the major recommedations from the Management Review Committee's study was undertaken during the year.

The new budgeting process introduced in 1981 was implemented and operating for the 1982-83 fiscal year.

A new equipment management and stores inventory system was introduced during January 1983 and was well advanced by March 31, 1983.

Automation of the accounting system continued, the items remaining are interfacing equipment, payroll and accounts receivable distributions.

The revolving fund activities were greatly increased by the acquisition of the Department of Northern Saskatchewan's equipment fleet and repair depots on January 1, 1983.

Accumulated Expenditure 1905 to Date

Fiscal Year	Current Year	To Date	Fiscal Year	Current Year	To Date	Fiscal Year	Current Year	To Date
1905-06	49,546	49,546	1931-32	8,149,746	63,594,958	1957-58	24,491,369	279,820,163
1906-07	484,177	533,723	1932-33	905,374	64,500,332	1958-59	23,697,574	303,517,737
1907-08	1,041,383	1,575,106	1933-34	862,029	65,362,361	1959-60	23,104,119	326,621,856
1908-09	1,443,335	3,018,441	1934-35	1,661,983	67,024,344	1960-61	25,237,066	351,858,922
1909-10	591,957	3,610,398	1935-36	1,620,142	68,644,486	1961-62	21,591,307	373,450,229
1910-11	610,920	4,221,318	1936-37	2,595,381	71,239,867	1962-63	22,094,828	395,545,057
1911-12	614,356	4,835,674	1937-38	2,823,356	74,063,223	1963-64	24,167,674	419,712,731
1912-13	2,525,188	7,360,862	1938-39	3,509,280	77,572,503	1964-65	27,152,511	446,865,242
1913-14	1,970,135	9,330,997	1939-40	3,399,603	80,972,106	1965-66	40,679,979	487,545,221
1914-15	2,370,439	11,701,436	1940-41	1,706,382	82,678,488	1966-67	54,387,704	541,932,925
1915-16	831,594	12,533,030	1941-42	1,874,917	84,553,405	1967-68	60,227,543	602,160,468
1916-17	536,594	13,069,624	1942-43	2,126,374	86,679,779	1968-69	60,110,923	662,271,391
1917-18	815,438	13,885,062	1943-44	2,918,157	89,597,936	1969-70	58,560,829	720,832,220
1918-19	616,472	14,501,534	1944-45	3,387,320	92,985,256	1970-71	68,081,718	788,913,938
1919-20	1,306,370	15,807,904	1945-46	3,908,367	96,893,623	1971-72	66,933,052	855,846,990
1920-21	1,804,973	17,612,877	1946-47	6,312,801	103,206,424	1972-73	63,362,093	919,209,083
1921-22	2,495,925	20,108,802	1947-48	8,840,535	112,046,959	1973-74	69,456,878	988,665,961
1922-23	2,201,358	22,310,160	1948-49	8,853,999	120,900,958	1974-75	96,760,356	1,085,426,317
1923-24	2,037,295	24,347,455	1949-50	8,767,610	129,668,568	1975-76	110,162,524	1,195,588,841
1924-25	2,229,408	26,576,863	1950-51	10,118,744	139,787,312	1976-77	123,321,325	1,318,910,166
1925-26	2,123,173	28,700,036	1951-52	12,823,535	152,610,847	1977-78	132,425,146	1,451,335,312
1926-27	2,660,195	31,360,231	1952-53	18,919,646	171,530,493	1978-79	160,610,850	1,611,946,162
1927-28	2,488,961	33,849,192	1953-54	19,135,070	190,665,563	1979-80	158,107,523	1,770,053,685
1928-29	4,228,261	38,077,453	1954-55	20,395,779	211,061,342	1980-81	168,287,313	1,938,340,998
1929-30	6,664,400	44,741,853	1955-56	20,127,262	231,188,604	1981-82	191,474,090	2,129,815,088
1930-31	10,703,359	55,445,212	1956-57	24,140,190	255,328,794	1982-83	192,829,361	2,322,644,449

Appropriation and Expenditure 1982-83

	Appropriation	Expenditure
Ordinary		
Executive Administration	$ 581,520	$ 591,096
Financial Services Branch	605,340	619,333
Personnel Branch	775,820	752,273
Planning Branch	719,740	733,241
Surveys Branch	2,024,830	2,155,132
Works Branch	81,690	72,129
Public Communications Branch	331,330	387,327
Operations Branch	862,720	850,197
Engineering Division	2,154,440	2,146,144
Traffic Safety Engineering Branch	285,420	295,939
Bridge Branch	485,300	476,204
Swift Current District	1,172,200	1,165,261
Regina District	1,617,150	1,612,960
Yorkton District	1,308,470	1,303,240
Saskatoon District	1,160,380	1,154,128
Prince Albert District	1,595,620	1,563,924
North Battleford District	1,408,060	1,310,719
Management Services Branch	1,113,930	1,120,364
Central Survey & Mapping Agency	1,457,660	1,456,742
Northern District	1,012,060	740,544
Grants	16,000	11,580
	20,769,680	20,518,477
Maintenance	68,182,650	67,903,233
	88,952,330	88,421,710
Capital		
Rural Surface Transportation	90,263,780	86,035,783
Urban Surface Transportation	18,093,000	17,903,049
Air Transportation	346,400	468,819
	108,703,180	104,407,651
Total	**$197,655,510***	**$192,829,361**

* Appropriation does not include special warrants:

Ordinary	$2,850,000
Capital	3,050,000

Urban Surface Transportation (Shareable)

Roadways		
Cities	$	15,861,463
Towns		1,416,114
Villages		572,918
Rural Municipalities (Hamlets)		52,554
	$	17,903,049

Cities		
Estevan	$	46,453
Melfort		53,357
Melville		6,621
Moose Jaw		263,865
North Battleford		706,868
Prince Albert		360,065
Regina		6,053,413
Saskatoon		7,999,701
Swift Current		65,748
Weyburn		168,194
Yorkton		137,178
		15,861,463

Towns	
Arcola	87,286
Assiniboia	10,782
Balcarres	121
Carlyle	123,625
Choiceland	450
Coronach	1,345
Cudworth	27,757
Cupar	2,030
Davidson	189,398
Eatonia	91
Eston	59,554
Fort Qu'Appelle	172,628
Humboldt	14,305
Indian Head	22,731
Kelvington	145,641
Kipling	47,954
Langenburg	20,575
Lanigan	96,485
Leader	5,856
Leroy	8,884
Macklin	450
Maple Creek	3,223
Moosomin	106,330
Mossbank	32,817
Shaunavon	2,000
Shellbrook	202,414
Southey	226
St. Walburg	69
Stoughton	15,450
Strasbourg	337
Wadena	1,368
Warman	3,372
Wynyard	10,560
	1,416,114

Villages	
Alida	76,904
Bangor	450
Benson	15,765
Birds Pont	11,017
Bulyea	18,881
Cadillac	290
Carievale	105,966
Creelman	450
Conquest	23,642
Drake	191
Dysart	83,441
Handel	3,952
Landis	450
Leross	22
Lipton	5,026
Loreburn	3,881
Manor	450
Middle Lake	450
Mistatin	16,606
Neilburg	450
Neudorf	7,666
Perdue	450
Prud'Homme	2,717
Punnichy	88,259
Rabbit Lake	450
Richmound	2,974
Saskatchewan Beach	18,495
Sceptre	1,569
Semans	21,683
Shell Lake	30,332
Storthoaks	52
Torquay	17,110
Wakaw	1,407
Weldon	11,224
White City	246
	572,918

Rural Municipalities	
Birch Hills	14,164
Bjorkdale	2,100
Grayson	2,691
Hazel Dell	1,410
Hudson Bay	17,705
North Qu'Appelle	9,574
Sasman	1,256
Silverwood	451
Torch River	3,203
	52,554

	$	17,903,049

Air Transportation 1982-83

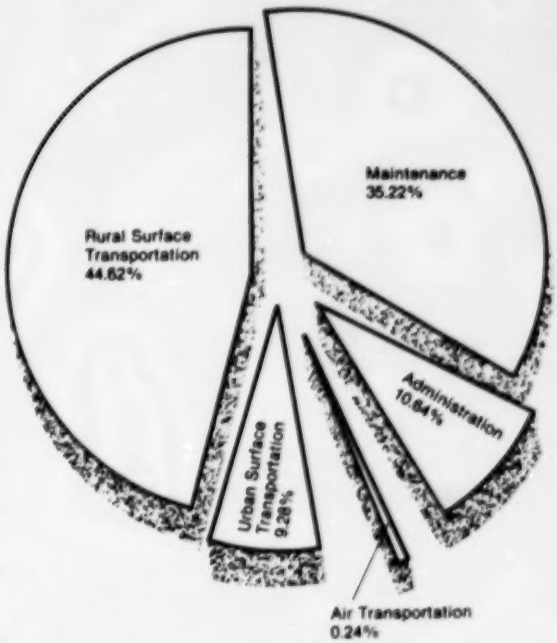
Municipal Airports

Assiniboia	$	3,700
Biggar		2,200
Bredenbury		4,000
Cabri		1,350
Carlyle		750
Cudworth		5,000
Estevan		3,700
R.M. of Eye Hill		16,042
Gravelbourg		2,200
Humboldt		750
Kamsack		1,500
Kerrobert		750
Kindersley		37,760
Leader		12,694
Leoville		23,311
Lloydminster		125,257
Maple Creek		2,200
Melfort		1,500
Melville		750
Moose Jaw		3,700
Moosomin		750
Nipawin		3,700
Rosetown		2,200
R.M. of Snipe Lake		2,200
Shaunavon		2,200
Tisdale		1,500
Unity		2,200
Wadena		9,203
Weyburn		36,893
Wynyard		750
		310,710

Provincial Airports

Buffalo Narrows		155,000
La Ronge		3,109
		158,109
Total	$	468,819

Analysis of Total Department Expenditure for 1982-83



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